CHEETAL

JOURNAL OF

The Wildlife Preservation Society of India

Vol. 23 December, 1981 No. 2

Kanha Tigress in the Tiger Reserve. *Photo—S.P. Shahi*

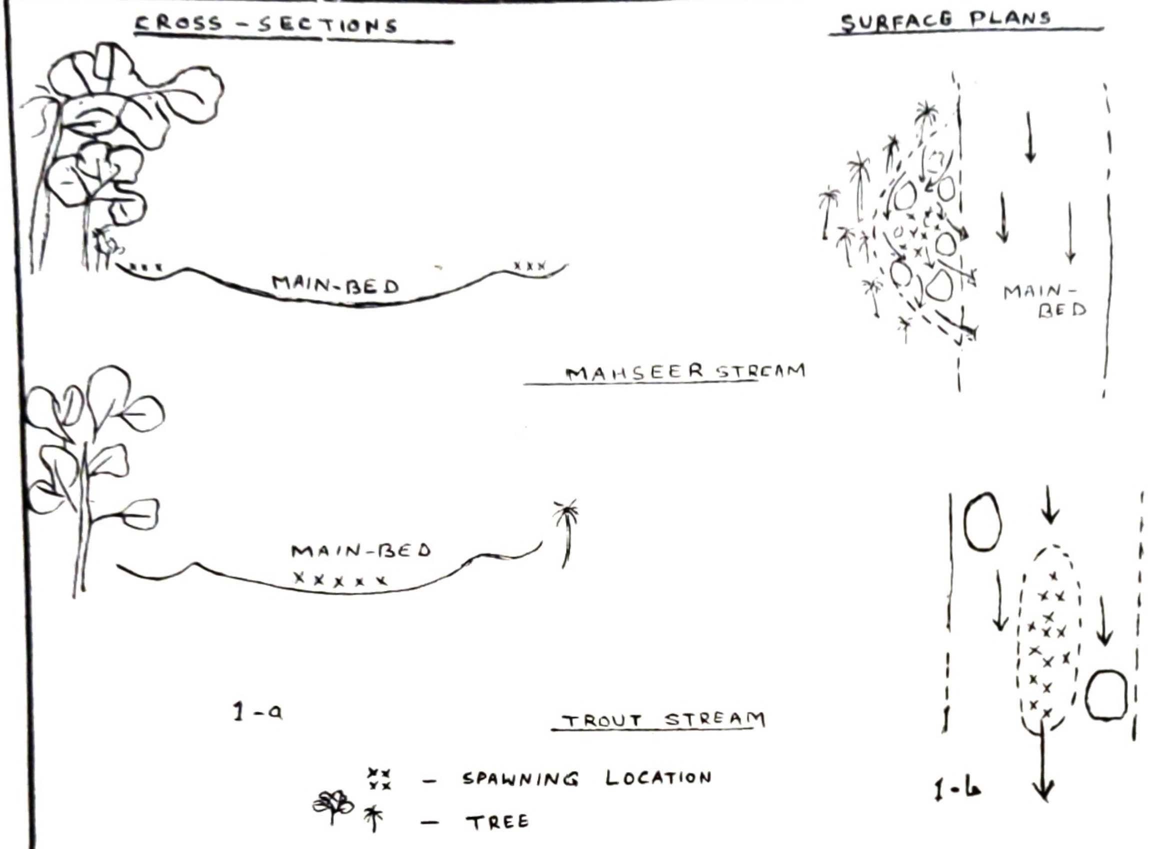
CROSS - SECTIONS
SURFACE PLANS
MAIN-BED
MAIN-BED
MAHSEER STREAM
MAIN-BED
1-a
TROUT STREAM
1-b
– SPAWNING LOCATION
– TREE

FIG. 1 CROSS SECTION AND PLAN OF SPAWNING BED SELECTION OF MAHSER AND TROUT, AND BEHAVIOUR OF STREAM CURRENTS AT SPAWNING LOCATIONS

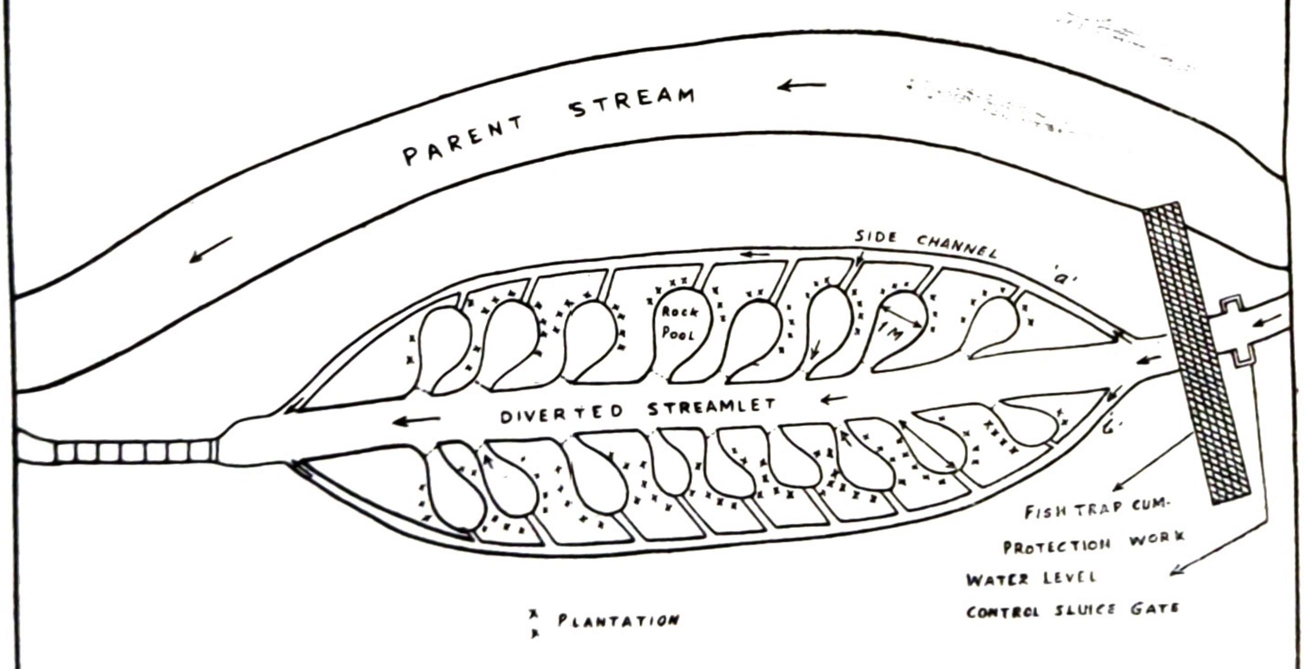
PARENT STREAM
SIDE CHANNEL
'a'
Rock Pool
1M
DIVERTED STREAMLET
'b'
FISH TRAP CUM-PROTECTION WORK
WATER LEVEL CONTROL SLUICE GATE
PLANTATION

Fig. 2 PROPOSED PLAN OF MAHSEER FARM

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FAUNA

Student Members of the WPSI have embarked on a new project by bringing out a quarterly news letter and named it Fauna. It is of the students by the students and for the students. The annual subscription is Rs. 10/- only. It is hoped that a large number of students will join the Society and get their FAUNA quarterly to promote their interest in wildlife and environment.

* * * *

Export of Peacock Feathers

Traders have been pressing for more than a decade for increasing the quota of peacock tail feathers to be exported from India as a single feather fetches a dollar or more as price in many countries of the world.

Conservationists have been opposing any increase in the quota for export. As desired by the Chairman Indian Board for Wild Life in 1979 census of peacocks was carried out in some states.

The following are figures for Gujarat State according to census carried out in 1981. The technique adopted has not been mentioned in the report—it may be a visual count. A total of 1,51,431 peacocks were counted under supervision of Mr. M.A. Rashid, Additional Chief Conservator of Forests (WL).

ABSTRACT

Name of District	*Nos. of Peafowl*	*Name of District*	*Nos. of Peafowl*
1. Junagadh	27470	11. Kutch	4766
2. Ahmedabad	21147	12. Mehsana	3516
3. Surendranagar	20140	13. Bhavnagar	3231
4. Kheda	15049	14. Rajkot	3231
5. Vadodara	11265	15. Surat	2905
6. Banaskantha	8079	16. Jamnagar	3092
7. Valsad	7124	17. Gandhinaga	1554
8. Bharuch	6242	18. Amreli	900
9. Panchmahals	6143	19. Dangs	407
10. Sabarkantha	5170		
		Total	1,51,431

Indo-US Workshop on Techniques in Wildlife Research and Management

KANHA—JAN. 1982

The rapid rate of depletion of wildlife populations in the past few decades has alarmed the Wildlife Managers and nature lovers in the Indian subcontinent. During the last decade a number of symposia and workshops have been organised in India to focus the attention of the Nation on this burning topic and also to educate the wildlife ecologists, managers and enthusiasts about the various research and management techniques. A workshop each was organised by North-Eastern Hill University, Shillong (1976), Indian Institute of Sciences, Bangalore (1977), Indian Institute of Sciences venue Bandipur (1979), Zoological Survey of India, Dehra Dun (1978), and Punjab University, Chandigarh (1981). These workshops were financially supported, amongst other agencies by the University Grants Commission who are very keen that wildlife as a subject should be taken up in University education in India. In addition, the Forest Research Institute and Colleges at Dehra Dun started a wildlife orientation course for the officers actively engaged in the wildlife management. As a result of these efforts made in the country, a number of problems connected with wildlife research and management were highlighted for which the proper research and management techniques were either not known or the known techniques were not found suitable for Indian conditions. A need was thus felt to interact with the wildlife experts of a country where a good amount of this type of work had been carried out. The Wildlife Directorate of the Ministry of Agriculture, Government of India was able to arrange for such an interaction in the form of an Indo-US workshop which was held at Kanha National Park (M.P.) from January 3rd to 21st 1982, with Sri V.B. Saharia of F.R.I. as Chief Investigator. About 20 American experts and an equal number of Indian experts constituted the presentation faculty. The American experts were drawn from American Universities, Federal Fish and Wildlife Service, Fish and wildlife services of the States and various wildlife foundations. The Indian experts were drawn from Forest Research Institute and Colleges, Zoological Survey of India, Wildlife Department of States, Bombay Natural History Society, Project Tiger, Indian Veterinary Research Institute and some Indian Universities. The participants numbering about Sixty were sponsored by the Wild Life Department of the States, Forest Research Institute and Colleges, Zoological Survey of India, Botanical Survey of India, Bombay Natural History Society, Wildlife Preservation Society of India, World Wildlife Fund, Project Tiger India, Indian Veterinary Research Institute and Forest Departments of Pakistan, Sri Lanka, Malayasia, Bhutan and Indonesia. The following 14 parameters were covered in detail by the American and Indian experts with a free interaction with the participants.

1. Field notes, data collection—storage and retrival.
2. Remote Sensing, photogrammetry, telemetry, instrumentation.

3. Sexing and ageing, capture and marking.
4. Veterinary procedures. health, nutrition and food habits.
5. Animal behaviour—quantitative methods.
6. Statistical methods, modelling systems ecology.
7. Environmental impact studies.
8. Census methods and status surveys.
9. Population dynamics.
10. Habitat evaluation.
11. Wetlands and waterfowl management.
12. Habitat management of forest lands and range lands.
13. Human dimensions and damage control.
14. Integration.

The results of the deliberations are to take the form of a manual on wildlife research and management techniques suited for Indian animals/conditions.

Excellent arrangements for stay, conducting of lectures and talks, laboratory and field demonstration and field exercises were made at the venue of the worksnop. A whole village compsising of 20 odd huts in typical Indian village style was erected at Khatia near the entrance gate of the Park alongwith a community mess and dining cum lecture hall. The lectures were organised at Forest Rest House and Log huts at Kisli. The laboratory demonstrations were organised at the laboratory of the Kanha Tiger Reserve at Kanha. The field exercises were spread all over the park.

It is hoped and expected that all the lectures as well as participants benefitted through these deliberations and gathered a wealth of knowledge to help and guide them in their respective fields. It is also hoped that the proposed manual on wildlife research and management techniques in India will be a landmark in the initiation of fruitful wildlife studies in India.

The Mighty Mahseer—Problems and Prospects of Culture and Propagation

BY

S.B. Raizada

Fish gain eminence as rapid growing food fishery or for their sporting quality. Mahseer has both to earn the title of "the King of mountain streams". King for no simple reason of its tremendous size but to the fact that it rises to live comfortably in the hostile torrents of hill streams and send thrills to seeking anglers. The scaly armour, the cylindrical body and the mettle to fight excells this fish to a status far superior to Salmonids that are praised and prized for sport.

Mahseer, a Cyprinid, is confined to Indian waters, spread from the eastern flanks of Pamir into the Indian plains, peninsula, the southern plateau, the Ghats, and the Brahmputra watershed in the east, farther beyond only in Burma, Thailand and possibly some streams of southern China touching the east and the north-east of India. All river systems of the country contain Mahseer in one or the other region at a corresponding migratory season. The fish is represented by six to seven species under the genus Tor and a Mahseer of another name, Katli, Acrossocheilus hexagonolepis. The Tor putitora Hamilton (the Golden Mahseer) amongst them rises to the highest to bear the true cold water of the Himalaya; immediately followed by T. tor Hamilton (deep bodied Mahseer) which is spread widely from Himalaya into the northern plains, Aravalli and northern Vindhyan system; T. khudree Sykes (the Deccan Mahseer) in the Deccan plateau including the Western Ghats; T. mussulah Sykes in the same plateau and the Eastern Ghats; T. mosal Hamilton (the Copper Mahseer), T. progenius Ham. —a variation of T. putitora, and A. hexagonolepis McClelland (the Chocolate Mahseer) in the north-eastern watershed above and inclusive river Mahanadi. The A. hexagonolepis is available also in the river Cauvery system.

Mahseers are basically fish of mountain rapids. Visit to the uplands for breeding and back into the plains is periodical and constant in life. Himalayan species migration is guided on snow melts whereas that of the peninsular and the plateau is by rains. Spawning takes place in sheltered rock pools of undisturbed rivulets and creeks. A comparative study of the spawning sites of Mahseer and Trout provides a difference of breeding habit of the two rheophilic types (Fig. 1.). Trouts spawn in nests (redd) excavated in mid stream section that has straight water currents as rapid as 30 cms. per second. Against this Mahseer digs no nest but moves to quieter sides of tributaries, to shallow and sheltered rock pools free of current, to shed spawn that is not burried. The act of males and female is similar to any other carp : two or more males with one female and splashing the water to effect mixing of milt (sperm) for a surer fertilization in still water that in case of Salmonids is performed by water currents. Mahseer breeds two to three times in a year and some only once. Shedding of spawn is in batches in the same locality. This periodicity of Mahseer breeding depends on species, strain and the stream they inhabit. One spawning is in April-June and the last, in the mountains, in September-October. The winter breeding is in January-February. This therefore is the only and truely indigenous fish from that migrates high into hills.

It was the thrillant sporting quality, played on Salmon baits, that initially brought it the recognition from fishery biologists and anglers alike from the early nineteenth century, or perhaps earlier, from Dr. Hamilton Buchanan, Cuvier to Dr. S.L. Hora and Macdonald. Many groped into its historical importance and etymons (Hamilton-1813, Lacy and Cratin-1905, Cordington-1939 etc.). The limits of its occurrence within the Indian sub-continent alone, was the cause of its subdued fame. But those who had the thrill on their rod never took this fish second to Salmonids.

The fish was available in large numbers, in good size, in all the rivers up in the mountains and then down in the plains. A Madras State Civil Service officer, Mr. H.S. Thomas, was the first to give a vivid sporting description of the fish in his book "The Rod in India", published thrice from 1873 to 1897 on high demand from abroad and within the country and is a prized possession even now. He acclaimed the fish "King of the mountain rivers" and opined ; "In my opinion .... Mahseer shows more sport for its size than a Salmon". He further adds- 'Further experience has confirmed ....that there are more Mahseers than have been named . ...that as much attention could be given to the Mahseers as has been devoted to the Salmonidae of Great Britain, of Europe, of America, it would be found that the Mahseers of India would likewise grow in numbers".

Sport fisheries contribute a large share to the state revenue in many a countries of Europe and America. An F.A.O. survey in 1965 indicates 28 million anglers spent a bewildering sum of 3 billion dollars and 40% of the total population of England, Sweden, Canada and America enjoy fishery sport for recreation. Those who have learnt of Mahseer's sporting quality, long to get the "big fish" and imagine what a boost to the economy of the country the fish could bring. Mahseers of tremendous sizes, upto 68 kilogrammes, have been caught during the nineteenth century and far too bigger described, caught sportingly. But now leave alone the catch, the very sight of a big fish is rare and the zone of occurrence is getting shorter and shorter. The causes are many and so are the possible remedies. There is yet time to act and hence this paper.

Basic causes of depletion:

How and why such a mighty fish is receeding. Even before any survey was necessary the causes are vivid. The responsible one is the advancing and selfishly enlarging foot of mankind; his unconsidered encroachment on the Mahseer realm, act that are inconsistent and not in confirmity with the nature. Natural losses get recouped but the never ending act of man leaves a permanent and mortifying dent. The causes can be summerised:-

1. Mountain visit is obstructed and spawning ground upstream is getting shorter and shorter with the construction of dams and barrages. The fish has no approach path.
2. Sheltered and secluded rock pools where the fish prefers to spawn and the progeny nursed are disturbed and many completely silted up mainly due to the regularly vanishing river bank vegetation. This vegetation was responsible also to maintain food chain-that run from diatom to insect and forage fish balancing system.
3. Removal of stones from rock pool sites for construction purposes.
4. Pollution of streams and lakes from industrial wastes, human refuse, pesticides washings from fields close to the banks (at many a places sawmill dust constitutes pollution) that lower down the aqua-environment and wipe away the grub of sustenance.
5. Dams and barrages holding back water have left below a dry river of scattered and stranded pools for miles togather whereas the uphill migrating fish and their young ones get stranded that become an easy prey to unscrupulous hands who do not fail to destroy anything and everything.
6. Indiscriminate blasting with explosives of wintering pools when the water level has gone down and the fish is resting at the bottom.

There are no countrywide specific statistics available to compare the fall in population and catch of Mahseer. Stray figures from reservoirs clearly speak of rapid fall in size and population. Table below is a six year figure from Gobindsagar reservoir in Himachal Pradesh. But the true picture is from fishermen and angler sportsmen who have fished the streams in the past and now and those like me who have seen this "tiger" right from childhood. The fish was available in large sizes everywhere in the mountain and down in the plains. Many of these streams are completely lost of the fish. The large cry from the lovers of the fish is a fact and the call to act is urgent before we reach a point of no return as was the case with the Indian Cheetah (Acinonyx jubatus Schreber).

Table

Year	Total catch in tonnes	Mahseer catch share in tonnes	Mahseer % in total catch
1963-64	4.968	3.172	63 %
1964-65	6.414	1.949	30 %
1965-66	6 760	2.073	30 %
1966-67	10 072	2.891	28 %
1967-68	11.627	2.673	23 %
1968-69	20.196	2.040	10 %

What therefore must be done ? The call for management measures is urgent and immediate, to be followed by the means on propagation. Concerted efforts are needed from men in the field who could be responsible to restore the eco-system, and the government to implement recommendations of fishery biologists. The measures are:-

1. Restoration of natural habitat,
2. Alternatives to man-made barriers, and
3. Farming and stocking of streams.

Operation to the first are:-

—restore the declining vegetative cover and identify the plant types of individual locations.

—working of vehicles through shallow river beds should be disallowed, that are usually plied for collection of stones (stone removal should also be disallowed from specified sites).

—construction of roads near identified spawning beds should be laid with adequate vegetative cover or the roads be planned farther off.

—formation of dam and barrage impoundments have submerged ideal spawning grounds and where the fish has alternatively found new grounds higher up, should be legally and strictly protected.

Operation to the second are:-

—dams and barrages, especially that have been raised on the mid region to the migratory route have come as obstruction to spawning migration. It was with a view to conserve Mahseer mainly that Dr. Francis Day, Inspector General Fisheries, India, in 1873 and Dunsford in 1911 had suggested construction of fish path and ladders in the body of dams and barrages etc. Many were constructed but the design and specification of these contrivances was on Salmon habit that did not meet with Mahseer demand. During later years there is no mention in spite of efforts from fisheries personnel. Suitable design should be drawn keeping in view the habits of the fish and by law made binding to provide these contrivances in every such project (a suitable design with 12 to 15 cusecs water drawl, in velocity half metre per second and passage chambers 2.75 to 4 metres and a fall of half a metre should be workable). These passage bodies must operate during the period of natural migration, as usual passage of the fish that was through the site of the structure.

—the stranded pools below reservoirs where the up migratory fish get trapped, should be protected. This usually occurs when water from the barrages is annully held back after high flood levels. The fish of the rivers seek shelter in the pools from the drying down water. These stranded impoundments are, however, good nursuries. A timely and prior information for salvage at such occasions and co-ordination from dam authorities is necessary. (Many employees of hydro-electric schemes act irresponsibly and therefore a fisheries expert should be on the management board).

The last and the most recent measure is farming:

—unlike Salmonids the response of the fish to breed in confinement is poor though there have been some successes recently on hypophysation and stripping at localised centres, worked on livestock from the wild and not the fish from farm. Therefore for proper development of gonads of fish under the farming conditions, the appropriate feed and water conditions will have to be found. The rigidity of life routine is more intense with Mahseer than Salmonids. At the same time there are places where a few Mahseer of migratory stock that have remained localised, cutting away their migratory habit. Examples are sanctuaries in Himachal Pradesh (Machial, Rissa etc.) and Uttar Pradesh (Hardwar). These can be selective stocks for farming. Fry and fingerlings obtained from farming means could be released in natural waters at a definate up or down migratory stage of the fish from the region of the farm—to mix up with the natural stock safely.

Mahseer is a very interesting fish to work with. I have had few opportunities to live and work in the vicinity of Mahseer waters in Himachal Pradesh (river Beas and Sutlej) and study the behaviour around river Chambal system in Madhya Pradesh and also in the rivers of Sikkim while organising the fisheries of Sikkim State.

Sikkim was perhaps the first State in the country to have embarked on "Project Mahseer" as an independent scheme on conservation and propagation. Not only that but also invited West Bengal to join hands because conservation is not a matter of one State but all the adjoining ones which a river system passes through and the fish travels. One is primarily is a hill state and the other one of the plains. A farm is also designed keeping in view the behaviour and habitat of the fish (the work is though yet to begin).

Fundamental details of the proposed farm are : there are river receeded beds and one such is selected in the vicinity of normal spawning ground. Water can always be drawn from some point above (see Fig. 2). Depression of the old bed is to be evenly excavated in a natural slope and fall, into a crescent cross section, Thus forming a streamlet 2 metre wide and a metre deep into pools and rapids that would bring a velocity of half a metre per second. At the proximal end, water feeder is through a gully channel that faces a wall of wire mesh crate-work or other type protection work, before falling into the built in streamlet. The head wall has a number of slits, 5 to 8 cms. high and 30 cms. wide, at various levels of the wall.

The total number of slits available at a time would depend on the quantity of water to be allowed through. Height of the wall depends upon the high flood level. The arrangement would work as barrier to the farm fish escaping upstream. At the lower end (distal) this joins back into the main stream through path and trap door. Along the streamlet on both sides are excavated projections that are oblong bowl shaped pits approximately one metre wide and one and half metre to two metre long, 30 to 60 cms. deep, to be strewn with 5-8 cms. size stones mixed with gravel. The pool sides to be well grown with vegetation to form into a sheltered rock pool. Each pit is connected to the central streamlet through a shallow channel wide enough (30 to 45 cms.) to allow brood fish in. Along the head of the rows of these pits run another set of channels "a" and "b" drawn as diversions on both the banks of the streamlet as feeder to pools. A small channel 5 to 8 cms. size for a flow of 7 to 12 litres per minute to feed the pits from these diversions. Outlet of the pools is guided with screens, to be placed in position as and when necessary to check escape of eggs fries or fingerlings. These pools would act as spawning grounds, hypophysation tanks and also as hatchery and nursery of eggs and fry derived from any means including stripping. The pool, if it happens to be subject to leaks, being above the streamlet level, can be cemented and then laid into natural ground as described.

A few out of the shoal of the spawining migratory Mahseer finding a congenial velocity of half a metre per second would find way through the ladder or some could be mannually collected. The spawning urged fish would seek into pools or the hypophysed fish added to these pools. The pool outlet to be screened after the eggs are there and the fish retrieved. The emerged progeny to be released into the main stream as described. The farm arrangement is considered close to the fish habit and expected to be perficient.

No standardisation on breeding, rearing and farming process of Mahseer have been perfected to an stage of prescribing. However with the existing work experience generalization can be drawn that water can be recommended at temperature range 24° to 27° degree centigrade (T. putitora lower range 22°C), females and males in an age group 2 to 6 years in a ratio 1 to 2 or 3 by numbers. The eggs are demersal. Hatching takes to place in 58 to 98 hours and the fry is ready in two weeks to twenty one days (the difference is between the peninsular/plateau and the Himalayan varieties). The younger feeds on plankton preferring animal group (zooplankton). The adults are omnivoure with adominance of hydrophyter. The adults feed voraciously after spawning with a preferenceon Schizothorax and Chilwa. The artificial feed prefaration can be accordingly formulated.

Many pointers and questions on physico-chemical requirements remain unanswered including hatchery, nursery, rearing and broods maintenance processes, such as:

—will all the Mahseers respond to hypophysation;

—shall we get ripe and undamaged natural resource Mahseers;

—water damand of various stages;

—water exchange rate;

—feed of different Mahseer species at different age stages;

—optimum temperature of different species, etc.

But a begining can be made and any alteration and adjustments can be made with passage of time and experience. Will the Mahseer spawn in confinement ? Perhaps not, but perhaps a few will and the progeny from these "few" when reared in safety for a high survival and planted into streams at the right period, would supplement the losses.

The wisdom of transplanting one species of Mahseer from natural region of distribution to other is yet to find justification as is the case of reported transplanting of T. khudree from Maharashtra into the waters of Jammu (J & K). Will T. khudree climb into T. putitora rapids and temperature limits in the Himalaya ? It may will be for certain impoundments, and also for studies, but only time will tell the truth of actual success. It was A. hexagonolepis (perhaps of the Indo-Malayan fauna stock) that got distributed into south. The Satpura hypothesis of late Dr. S.L. Hora on the distribution of Himalayan fauna to the south may be an explanation. But this will be ages before one species establishes into other locality. I doubt this will occur during our times. Important is therefore to work on individual Mahseer species (and strains) in the area of their natural distribution and work fast, and hard, to establish their natural habitat.

A Mahseer research unit should be established to extensively work entirely on Mahseers combining the will and resources of various states that must join hands to investigate amongst other things and points already raised:

1. The basic causes of depletion in different zones and the alternatives for restoration.
2. How Mahseer behaves to barriers and changes.
3. Inter and intra species relationship.
4. Identify physical and chemical behaviour including limits of variations each species exhibits.
5. Indentify agencies in different states and regions, that should come forward to work on plans and help establish the habitat (such as Forest dept., Public Works dept., Local bodies, fishermen agencies etc.)

6. Scope of farming and propagation.
7. Economics of Mahseer farming.

The scope and matter of study is also to find:-

1. Whether Mahseer are a fish of Palearctic discent and that it has relative species beyond the Pamir, such as the Barbur grypus of Syria ?
2. How far the Meo-pliocene upheavels of Siwaliks, Satpura and Vindya have contributed to the distribution of the genera to the various waters of the country; the time adaptation of the species into these systems and that the species survived the vagaries of geotectonic changes ?

If the last is true, the fish would sure rise back as a species hard. It only needs a helping hand from the so far indifferent man.

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Food of Greenshank, *Tringa nebularia* (Gunnerus) around Dehra Dun

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Introduction

Greenshank, *Tringa nebularia* (Gunnerus) is a common winter visitor. This winter visitor has a wide distribution in the Indian region and is found in plenty around Dehra Dun during winter season. It is usually found singly or in small parties of 3-5 and occasionally in a flock of 15-20. These birds affect river banks and tanks of the district. In spite of the fact that these birds are commonly met in winter, almost nothing is known about their food habits. In the present communication, the food of Greenshank, *Tringa nebularia* (Gunnerus) has been studied with a view to find out its economic status. An attempt has also been made to compare its food habits with another member of the same genus, *Tringa glareola* Linnaeus studied by Mukherjee (1976).

Material and Methods

The collection of birds was carried out during the years 1976-1979. The birds were collected with a 12 bore DBBL shot gun using No. 6-9 shots. These birds were collected from the river Asan, a tributary of river Jamuna, about 37 kms north-west of Dehra Dun and Sailani river, about 41 kms south-west of Dehra Dun on the Dehra Dun-Saharanpur road.

The shot birds were labelled in the field. These were packed individually in polythene bags and brought to the laboratory. Material which could not be examined on the same day was preserved in 5% formalene. The crops and gizzards were then opened and contents were put in screen sieves and washed with water. These were placed on a blotting paper and dried for five minutes at room temperature. The weights of contents was taken. An electronic single pan balance, accurate to .001 gms was used to weigh the samples. The different food items were then sorted out and weighed again. These food items were identified in the laboratories of Zoological Survey of India.

Gravimetric analysis of food

During the study period 1976-1979, gravimetric analysis of stomach contents of 27 specimens was done. The results are tabulated in Table 1.

Table 1

Stomach contents of 27 Greenshanks

Item of diet	N	% Wt.	Remarks
Phyllum : Mollusca			
Class : Gastropoda			
Order : Stylommatophora			
Family : Ariophantidae			
Macrochlamys sp.	2	21	Partially broken shells
Family : Subulinidae			
Opeas gracilis Hutton	2	17	Complete and broken shells
Order : Megagastropoda			
Family : Aninicolidae			
Digoniostoma pulchella (Benson)	4	80	Complete and partially broken shells
Order : Basommatophora			
Family : Lymmnaeidae			
Indoplanorbis exustus (Deshayes)	6	47	Complete and broken shells
Misc. Mollusca (Fragments of shells)			Not identifiable
Phyllum : Arthropoea			
Class : Insecta			
Order : Odonata			
Family : Libellulidae			
Brachythemis contaminata (Fab.)	1	26	Naiads partially digested

(Cont d.)

Table 1—(*Contd.*)

Item of diet	N	% Wt.	Remarks
Libellula sp.	2	29	Naiads partially digested
Order : Plecoptera	1	19	Badly damaged. Not identifiable
Phylum : Chordata			
Class : Amphibia			
Order : Salientia			
Family : Ranidae			
Rana sp.	2	47	Badly damaged. Identified upto genus level.
Class : Teleostomi			
Order : Cypriniformes			
Family : Cyprinidae			
Puntius ticto Ham.	3	90	Feeds on the larvae of mosquitoes and other diptera
Puntius sp.	1	63	—do—
Chela sp.	2	57	—do—
Garra gotyla gotyla (Gray)	3	23	Badly damaged. Identified from bones
Barilius bendelisis Ham.	2	76	Partially damaged
Barilius vagra Ham.	4	59	—do—

(*Contd.*)

Table 1—(*Contd.*)

Item of diet	N	% Wt.	Remarks
Family : Cobitidae			
Lepidocephalus guntea (Ham.)	2	100	Partially digested
Lepidocephalus annandeli Chaudhuri	3	71	Partially digested. Fishes of about 5 cm length
Noemocheilusp	2	37	Partially digested
Order : Perciformes			
Family : Centropomidae			
Chanda sp.	3	41	Partilly digested. Feeds on the larvae of mosquitoes and other surface dwelling diptera
Order : Siluriformes			
Family :Begridae			
Mystus sp.	2	62	Partially digested
Misc.			
Fish remains			Not identifiable
Sand and stones			

Abbreviations used:

N : Number of birds which had taken the item.

% Wt. : Maximum percentage of food item by weight found in any single specimen.

Discussion

The food of this species as given by Salim Ali and Ripley (1969) is molluscs, crustaceans, insects, worms and tadpoles. They have not mentioned about fish which appears to constitute the main source of food of this species in our studies as is evident from Table 1. Almost in all the specimens examined, fish in partially damaged state or bones and scales of fishes were found. It was discovered, after the examination of stomach contents of 27 specimens of Greenshanks that the food of this species consists of molluscs, odonata and plecoptera larvae, fishes and frogs. No insects other than odonata and plecoptera larvae were recovered in the stomach. Worms also were not recovered from the guts of these birds. In this respect, the food of this species differs from the food of Spotted Sandpiper, *Tringa glarsola* (Linaeus. The food of Spotted Sandpiper as reported by Mukherjee (1976) consists chiefly of molluscs, insects spiders and worms. Not even a single fish has been recorded in the food of Spotted Sandpiper. Whereas in our study of Greenshanks, it was discovered that in some cases fishes constitute 100% of food.

About the economic importance of fishes consumed by these birds it was found that the birds took fishes which do not grow more than a couple of centimetres (except for *Garra gotyla gotyla*, which grows to a maximum of 15-20 cms) and hence not of commercial importance. But in the present days of inflation and high costs of fishes, these small fishes have assumed some importance as these are eaten by poor people who can not afford to pay for bigger and more delicious fishes.

Certain species of fishes like *Puntius* sp., *Chela* sp. and *Chanda* sp. are surface feeders and usually devour larvae of mosquitoes and other diptera which are found on the surface of water. All the above three species were consumed by these birds.

Conclusion

After going through the above discussion, one can easily classify Greenshank, *Tringa glareola* (Gunnerus) as harmful bird.

Acknowledgement

We are thankful to the Director, Zoological Survey of India for facilities. Thanks are also due to Dr. Raj Tilak and Shri A. Hussain of Z S.I./N.R.S. for identification of fishes and frogs and to Dr. Arun Kumar for identification of odonata larvae.

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Is Knowledge of Topography Inherited By Wild Animals ?

BY

RAZA H. TEHSIN

1. About 8 miles east of Udaipur and on Udaipur-Chittor Road there is a gate called Debari Dervaza. South of this gate are continouus hills which go up to Dharyawad and North of this Gate hill ranges go up to Kumbhal Garh and beyond. East of this gate there is a plain area with a few small hillocks here and there which stretches up to 5 miles, then there is a low hill range called Nahar Magra. This hill range is 4 miles long and 2 miles broad. Further, east of this there is a plain area miles after miles.

Nahar Magra was a game reserve of Udaipur Maharana's in the days of their rule. It was teeming with all sort of game, specially Blackbuck (*Antilope cervicapra*) were in abundence and exceptionally big herds of 500 to 1000 animals were seen those days. Apart from Blackbuck, there were plenty of Chinkara (*Gazella gazella*), Blue Bulls (*Boselaphus tragocomelus*), Sambars (*Ceavous unicolor*), Wild Boars (*Sus crofa*) etc. After independence animals were massacred and hills were denuded of all trees and shrubs. Same was the fate of hills around Debari Gate. The Plain Area between Debari and Nahar Magra which was covered with dry deciduous forest in the past was also converted into agriculture land.

After seventeen years of this calamity, when the face of this piece of earth was completely changed, there appeared a Sambar in a hill near Debari and was marked by the villagers. When I reached the place, some fifty villagers were awaiting my arrival at the base of the hill. We discussed about the mode of the beat. All villagers except one were of the opinion that I should sit on a well defined retreat, just north of hill near the ridge, where there was an old Shooting Box. A man who was an experienced hunter of the village, insisted that I should stay where I was, i.e. just at the base of the hill. But others argued that there is no jungle beyond this, simply there are fields and why an animal like a Sambar, which prefers jungle, go to fields, by avoiding well defined line of retreat into the hills beyond, so I yielded to the majority and started climbing up. When I was nearing the ridge the Sambar rose from its hiding place and started running down the hill. It passed right from that place from which that local hunter was insisting me to sit. It went into the fields heading towards Nahar Magra. Several times he was chased by the persons working in the fields. From vantage point I saw him heading towards Nahar Magra for about 2 miles then it disappeared behind a hillock.

It was a young male Sambar less than four years old, because the antlers were not grown into the full number.

2. There was a tradition amongst tribals around Udaipur that after Holi Festival men folk left their villages in the quest of hunting. It was a bad omen if they returned without any bag. Apart from ill omen, ladies curse them and make mockery. So unless they found a kill they would not return from the hunt.

In by gone days there were big jungles and plenty of animals but excessive hunting and deforestation practically wiped out the population of wild animals. Another factor which had great effect on the population of the Wild Animals of these forests was that there were repeated epidemics like rinderpast etc. These epedemics took heavy toil of ungulates, hence the population of wild animals become very thin.

Fifty kms. south west of Udaipur and in the heart of tribal belt, there is a village called Jharol. Around this village there are high hills covered with dry deciduous forest. In the mid fifties. just after Holi Festival two Sambars (*Cervous unicolor*) were, spotted by some tribals. They gathered in strength and started a beat. There were four Match-lock guns and two salvos were fired from these guns but failed to produce any result. The failure did not deter the persuers from chasing. The beat continued like wild fire which was also joined by the men of different villages which come in the path of the beat. The gun powder was exhausted but beaters were on full strength which was further strengthened by fresh reinforcements. They were determined to get their prey but Sambars eluded them for miles togather.

For about 10 miles Sambars escaped through well defined game trails and on these trails they were ambushed by some villagers armed with sticks. axes and stones. After going 10 miles in this way Sambars tried several times to break the beat but were driven back by the strong wall of men. Thereafter, Sambars used haphazard way of retreat as if they were confused in an unknown topography. Because of this the ambush ahead of beat were useless and hence they eluded beaters for three days. On third day when they were about 30 miles off from their starting point, they were overpowered by beaters because of sheer exhaution and thirst.

3. Near Udaipur there is a place called Zawar Mines. There were abandoned old mines from which lead and zinc was mined. Now the mining operation in this area is in full swing and a township is built here. Forest too has almost disappeared. But still, in spite of so much disturbances at the time of littering a pair or two of Panthers (Panthera paradus) appear and occupy the old caves for littering.

4. Similary after independence when ungulates were wiped out from the Jungles around Udaipur, carnivors specially Panthers played havoc with the livestock of villagers. My father off and on received requests from the Government to destroy these marauders. I observed that after freeing a particular area of the Jungle from Panther, within fifteen to twenty days, again their appeared two or three Panthars. They used the same game trails, day time retreat, same water holes and same caves for breeding etc.

From first observation it is plain that the ancestors of that Sambar belonged to Nahar Magra Jungle. For some reason he had left his present abode and migrated towards the old haunt of his ancestors, Because topography of the terrain is inherited, he knows where he has to go and what will be the route which leads him to new Jungles.

From second observation I inferred that those two Sambars knew the topography of their beat up to about 10 miles when they used the well defined line of retreat for their escape. Then they tried to break. When they failed in this and because they did not know the topography of the forest ahead, they moved in haphazard way.

From third observation it is clear that Panthers inherited the appropriate littering places are those old caves which they occupy at the time of need and left them after sometime.

When all the Panthers of a particular Jungle were shot dead, again within a period of twenty days a new one appeared. He shows by using same game paths, water holes day time retreat etc. as if he knew every nook and corner of this Jungle. All these observations points to the inference that some knowledge of topography is inherited by Wild Animals.

These are some strong evidences which show that the topography of particular area where a wild animal lives has been inherited by his offsprings. When an animal mated with the other animal of adjoining beat, the knowledge of topography increases to two different beats in their offsprings and so on.

The rapid deforestations, claiming the Jungle for agriculture purposes, dam and road construction etc. may have great effect on those animals who are great wanderers. They are confused when they found the locality with changed topography in very short time. It is torturous for them to find some way out. This mental tension which drained most of their energy may have some effect on their breeding.

Some experiment should be done in this direction because it can be practically proved on some captive animals.

Further research on this subject will be of immense help for the captive breeding and rehabilitation of Wild Animals.

The Peregrine Falcon Migration and Navigation

By

S.M. Osman

In all such matters as migration of passage peregrines and other obscure phenomenon relating to navigation by these birds, till a better proof of these latent facts does not emerge, the assertion of my hypothesis in this province holds I am sure, as good a chance of acceptance by the knowledgeable public if not better than theories advanced heretofore by others.

There are some five known types of passage peregrines that breed in Northern Europe and Northern Asia. They all fly south every winter from breeding grounds in the north. Mostly peregrines that belong to one group will generally fly to wintering quarters that are well defined. However, stray birds are at times likely to wander into adjoining areas. Here an attempt to explain navigation and migration by these falcons that regularly perform a double journey of thousands of miles yearly, will be made.

In view of the huge distances these peregrine falcons are used to flying, at times over featureless country and great water expenses, to safely return to nesting areas, one is forced to marvel at such demonstrations of homing ability, an ability that has been the subject of many investigations. Dependence on the sun is not entirely ruled out and yet its use by the peregrine falcon to orient consistently, does not explain the flight of these birds during unfavourable and cloudy weather conditions, when dependence on the sun for guidance cannot be maintained.

Whatever, be the ultimate findings, the moving seasonal spectacle of these falcons flying south in winter, and north during spring has been a puzzling dilemma to most of us. The so called binding relationship of breeding ground and feeding area cannot simply provide the peregrine's compass. In view of the fact that palearctic peregrines may at times be forced to travel in cloudy weather, we may safely conjecture that they do possess something by way of navigational equipment in addition to the so called sun compass orientation.

A one hundred and eighty degree reversal in direction of flight on its return journey by the peregrine falcon, still depending on the suncompass is a manoeuver not entirely convincing, that is if we are to surmise that it is the same sun compass that guides the falcon back to its breeding ground. And so for the exponents of the sun compass theory. quite a bit remains unanswered. During the Aretic winter there is little light available inside the Aretic circle, and the sun's brief appearance low on the horizon could attract the peregrine to fly south. What however is the strong cue that makes the peregrine return to its nesting site in the summer ?

This brings us to a very interesting subject which may perhaps have escaped former researchers. If we are to believe in what is termed instinct, we will have to agree that instinct is after all nothing more than a form of learned response. A response so deeply instilled in bird or animal nature, that an involuntary impulse will elicit certain changes in behaviour. As a practicing falconer I am absolutely convinced that the peregrine falcon is a bird in which instinct has been highly developed.

Since the last thirty eight years or more, I have been observing these falcons in captivity, and in the wild state as well. My observasions as in many cases has not been a general act of a bird watching alone; all the time thinking in terms of natural selection, and of evolution of species. In my opinion real observation defies any set of dogmas or rules. Lately there has been a lot of talk about bird and animal observation, yet very unfortunately little study has so far been devoted to the very science of observation itself.

Returning to the subject of the peregrine's navigation system, it will be conceded that since almost seventy million years after the cretaceous age, adaptions have been occurring within the avain world, and the peregrine falcon is for us today a wonderful example of instinctive behaviour that plays an important role in its ability to navigate and set course over enormous distances. A very major problem as it appears to me is of course the complete absence of information on the falcon's response to environmental forces through geological times a compared to our modern day peregrines.

The law of planetary movement, gravity and magnetic attraction have since long been suggestively applied by investigators in connection with the falcon's navigation system. When we consider some of these factors. the entire postulation of ideas becomes remarkably interesting because of its relation to astronomical and physical changes that are in evidence.

It is possible that at a time when terrrestrial climatic conditions were much more severe, and the cold ice cap extended much further south than it does today, periodic changes in the climate, obliged bird life in quest of food, to fly in a particular direction. This sort of flight would necessarily satisfy their hunger as they would then find themselves in a region where food would be available in comparative abundance. Flight patterns have thus been deeply instilled and instinctive behaviour established. A behaviour that persists even in our time today, irrespective of the changed climatic conditions prevalent at present. However the question of point to point flight by the peregrine falcon calls for more than just the exchange of one living condition for another, and perhaps a better one. Our problem, as I see it, is essentially of direction finding by the peregrine falcon. So far simply an urge to fly to a warmer climate, mainly for food, has been established.

There have been scholars who in the past and even today support the theory that all migratory bird life makes use of the earth's magnetic field for direction finding. I am sorry to say that this does not ring very true. Had this been so all migratory birds, over a period of geological time, (500,0000 years), would have had to adjust themselves to 180 degree reversals, since it takes that much time for the earth's magnetic poles to reverse themselves.

Stellar orientation process by the peregrines or any migratory bird life, cannot be termed as accurate, even if we are to assume that peregrines do travel by night. Such a theory would naturally propose that migratory birds guide themselves by flying at an angle to particular star groups. It also presupposes absolutely no change in direction of flight by the falcon regardless of time shift in the position of heavenly bodies as the night progresses. Under these conditions flight correction by the migrator appears to be, even at a glance, an unbelieveable task. In addition to all this, every twenty six thousand years the precission of equinoxes causes the direction of the earth's spin axis to describe a radius of 23.5 degrees which in its wake brings about changes in the apparent star positions. In this way, in every 13000 years, spring stars become fall stars. Implication brought about by these changes makes it difficult for migratory birds to navigate by the stellar system alone.

Those who advocate the theory that falcons (peregrines) are able to set course by the sun, cannot explain as to how these birds are able to determine when, and if, they get blown off course. Even if this were possible, the means adopted by the peregrine to appropriately correct such errors remains unsolved. Broadly speaking the peregrine falcon locates the sun, but we should not forget that the absolute position of the sun is not constant throughout the day, because it keeps shifting from east to west. If the sun were to serve as a beacon the peregrine falcon would then be obliged to alter its flying direction to compromise for the sun's apparent movement. This is a most difficult feat, for in fact the sun's movement is only an apparent movement brought about by the earth's rotation.

I believe that the inclination of the earth's axis is responsible for not only sensitizing direction finding apparatus in falcons but also giving them their up north and down south selection facility. Detailed explanation in this regard will be furnished in the ensuing paragraphs. In view of all the ideas put forward by investigators and recorded here earlier, I am obliged to consider, nay acknowledge the fact that prevailing wind direction is the main, and perhaps the most decisive factor in the peregrine's migratory behaviour. This way all a falcon has to do, on its way down south for the winter migration, is literally beat its wings and get carried south to its wintering quarters by the prevailing winds. All mass migrations, seem to take place in this manner. During the summer, a reversal in wind direction helps the falcon to fly in the opposite course. There is nothing strange about this, for even swarms of locust, butterflies, beetles and different types of moths, that conform to a lower order of creation, and lack sophisticated mechanisims, are known to migrate from place to place taking advantage of wind steerage.

We know for a fact that throughout the cold winter months, there will be cold winds blowing from the north towards the warmer regions of the equator and the southern hemisphere in general, where the sun's rays because of the tilt in the earth's axis has been concentrating. These winds are taken advantage of by the passage perigrine travelling south. In early spring there is a cessation of these northerly winds. The sun by now will have crept up due to the inclination in the earth's axis, and its rays will have begun falling in greater concentration on the northern hemisphere. The return journey by the peregrine will therefore be effected in a climate of comparative calm without having to face headwinds of any kind. As a matter of fact in certain areas favourable winds may even help the peregrine on its way to its breeding quarters. And so it is the inclination of the earth's axis that once again plays a most significant role in the peregrine's migration.

The peregrine I am sure is endowed with a sense of daily time. The creeping cold of winter with its shortening daylight hours sends the falcon rushing south. Similarly the lengthening day of spring in the tropics, sets within the falcon into motion a migration impulse that has been hammered into place by aeons of selection pressure to go flying north. The periods of this rhythm is plainly connected to changes in time exposures of sunlight, and not to the intensity of heat or cold as will be seen from our experiment later. Reproductive cycles in the peregrine have been tuned to fluctuations in environmental conditions and thus we begin to understand the factor that stimulates the arms of this biological clock.

How it may be argued, does the peregrine know when to begin its breeding activity? A peregrine falcon depends on climatic variations and the lengthening of daylight periods, brought about by the inclination of the earth's axis, to indicate the time for nesting and breeding because it like all other birds exhibits photoperiodic mechanisms. Photoperiodism is a factor which was discovered by falconers in the hey day of falconry. By placing decoy birds in the mews or hawkhouses, and then exposing these to intense artificial light during the night, they were brought to breeding condition. It caused the decoys to sing and display themselves in a manner so as to attract falcons. Since these measures were always taken in autumn all decoys active and in mating pitch were particularly valuable in luring passage peregrines to the trapper's net. The experiment has indeed been a landmark in research done with birds.

In winter a decrease in daylight hours in the northern latitudes particularly, causes the peregrines physiological apparatus to deposit certain chemicals in its body, to trigger the migration impulse by the deposition of certain fats in the falcons body tissues in anticipation of the long journey ahead of it. It was seen, again by falconers, that mewing of poultry (keeping them in hawk houses) and by simulating artificial short days in the height of summer, would fatten the birds for the table.

In view of all this we are therefore obliged to conclude that certain kinds of sensory nerve impulses will inhibit or suppress other impulses in the peregrine, when these are exposed to given periods of daylight. A property which enables the peregrine to respond differently to the varying quantums of daylight it gets every day. The simple feeding hypothesis alone, we see is not responsible for the peregrine's return journey to the north, as there is food already in ample abundance available in the falcon's wintering area in the tropics.

As pointed out earlier, temperature variations are indeed not directly connected with the falcon's movements. In mammals it is seen that the shortening and lengthening of daylight is enough to bring about rhythms of cyclic behaviour which has its origins set in conditions related to length of exposure to daylight alone. A trace of this most interesting phenomenon if is discernible in human behaviour as well. This in scientific jargon is known as a built in circadian or daily clock. Under normal conditions all activity in the case of man is confined to his awakening or daylight hours. I am not referring to nocturnal activity by human beings whose call of duty or nature of work, compels them to stay awake at night; for night and darkness are symbolic of rest and sleep. And all this as we know is not effected by changes in the level of ambient temperature.

Nutritional characteristics imposed by certain types of food taken by migratory peregrines could to some extent also be responsible for their return journey to breeding grounds. This way we have to consider reasons that largely depend on levels of food value, entailing differences in composition necessary for a species due in for nesting and breeding. Return flight to breeding grounds is synchronized by the intake of specific types of food necessary for transition of falcons from one region to another. Throughout the winter peregrines will feed mainly on diet consisting of birds that live in the tropics. Meat of such birds is known to carry a high percentage of protiens. Its intake could evoke some form of breeding activity, and this factor coupled with the lengthening of daylight hours as well as climatic changes can cause an increase of hormone production in nerve cells of the falcon's brain. These hormones then get carried by the peregrine's bloodstream to its gonads which are in turn stimulated to produce sex hormones thereby evoking breeding behaviour by the promotion of storage of calcium for egg building. Thus these changes are enough to provoke ample stimulli in providing a motive for the falcon's return journey to breeding grounds.

The question that emerges from the expostulation of this theory is how reproductive mechanisms once engaged can be later switched off for peregrine subspecies that remain in the tropics could continue to be reproductively active till such a time when daylight begins to diminish. Since the first brood is usually fully fledged by the end of May, attempts to breed immediately afterwards, when there is still lots of daylight available each day, should normally be made. This could be possible from a theoretical standpoint. However the onset of autumn would be an inappropriate season for food supplies for the young and an ingrained knowledge of this, irrespective of any form of light stimulation acts as a safety mechanism. It is also possible that immediately after a clutch of young are fledged, the gonads in parent birds get spontaneously regressed and any further activation would necessarily require sufficient time. By then the shortening daylignt hours of autumn would put a stop to all such activity.

Returning to the subject of the peregrine's direction finding compass, the sun's position as explained earlier, not being static remains but a small facility for pointing the way. Riding the wind as we have seen, irrespective of the sun's position remains the prime factor. Of course it is possible that at some stage passage peregrines may have to contend with headwinds. Such cases would be few and of short duration. At such times, falcons could easily be guided by topographical features. In addition to this, the lay of the land offering where ever possible, a path of least resistance to the peregrine on its journey could be of immense value.

Whenever crossing high mountain ranges, it is logical to assume that the peregrine falcon will take advantage and fly through a convenient gap in the chain, rather than over some high peaks in the line. All travel routes of the peregrine have got to ensure adequate supplies of food for the traveller, hence whenever possible pockets rich in wildlife such as birds are chosen as temporary halting sites.

I have seen that the exact wintering perch for a given peregrine falcon, need not always be the same spot. Wintering perches or sites are chosen primarily because such spots and their immediate surroundings are able to satisfy a set of conditions in demand by the peregrine. Very naturally the most primordial consideration in all such cases requires abundant availability of food supplies; and yet it is not merely food, but food of a definite sort that always is the main attraction with these falcons.

The peregrine, falcon mainly depends on its super speed to strike its prey in midair and knock it down. In view of such tactics it is but natural to take for granted that it would require a lot of open space where a determined chase would definitely end in a certain kill. This principle cannot however be equally applied to the case of the calidus falcon as they are by nature adapted to hunt and find food under distinctive conditions. It is now a well established fact that peregrine falcons will move into city areas during winter months, and in the big cities they always establish perches or observation posts that are confined to commanding positions and conspicious landmarks such as cathedral spires or multistoried very high buildings. Inspite of the apreading tentacles of civilization, these passage predators have learnt to share with man the environs quite comfortably. Moving into a busy city habitat, with its confirmed abundance of pigeon life, is a clear indication of this.

In Allahabad I have seen in five successive years of what may be termed falcon watching, the arrival and departure of passage peregrines. All these birds used confirmed perches in the city. One such perch stood atop the tower on Mayo Hall. Another existed on the main cathedral spires,; not far from the railway station, and yet a third perching block was situated on the dome over the university building. Since I had been observiug these birds through high powered binoculars, I got well acquainted with each individual bird's physical differences. For example one bird I noticed had a slightly deformed beak. Another one had the middle toe on its right foot missing, and a third falcon had a white spot, an opacity on its right eye. Under normal conditions such slight imperfections would go absolutely unnoticed by an inexperienced observer but to a falconer these defects loom big enough to mark the possessor falcons very recognizable. In addition to the three peregrines already mentioned, there was still a fourth peregrine. It was a large female, in fact it was such a monster that its very size alone was sufficient to make it stand out amongst the rest. Incidentally all the three other peregrines were also female birds.

Though the four peregrines came to Allahabad year after year, for the five years that I watched them, it was not always the case of the same bird capturing the same perch every time. On one occasion I witnessed an adult and a haggard peregrine arrive simultaneously at the same perch. Immediately there followed a seemingly endless battle for the perch. The fight continued unabated for two days at the end of which the haggard peregrine, last year's possessor of the perch, flew away in disgust but not before making her opponents feathers fly. And this clearly brings out the time proven dictum that any territory which is defended by man or beast or bird, is an assertion of a determined behaviour common to all creatures. Falcons living in the same area, eating the same food, must necessarily fight to space out so that overcrowding is avoided. Sometimes in the ensuing fight that follows severe injuries get inflicted, and the looser has to withdraw and find suitable hunting ground further afield.

In open country and field areas, I have time and without number noted passage peregrines prefering isolated tall trees that loom large and strikingly prominent, for purposes of perching. In most cases it has not just been the choice of the tree alone but its attributes as an observation post that favourably recommends itself to the peregrine. Mostly such trees are situated on river banks with a lot of open space on all sides. In the absence of big rivers, a prominent tree on the fringe of a lake or huge pond is preferred. Generally such lakes or big ponds are in the winter teaming with water fowl and lesser types of aquatic bird-life.

While out shooting in the Eastern Doon Valley, at a place that in those days used to go by the name of Virbhadra Shooting Block, and here I speak of some forty years ago, I came across a peregrine that had taken position in a giant cotton—wood tree. The tree stood besides a partially dried pond, and there was a bit of water remaining in the middle of the pond. To the water usually came not only flights of small ducks but also pigeons, doves, partridges and other birds and animals to quench their thirst.

However one must not jump to the conclusion that all peregrine perches lie so to speak right in the lap of the falcon's hunting field. Sometimes these hunting grounds, as we have seen in the case of city based peregrines, could lie at a distance of some miles from the actual, perching block. From all this the fact appears that wintering grounds for passage peregrines, must combine a number of factors, all of which are essentially associated with food; factors that have since times immemorial been instinctively chosen and selectively reserved, and indelibly impressed in the avain brain.

I have seen lots of bird-life including falcons, during the migration season, flying south every year, however I do not know of peregrines attempting night flights at the time of migration. Some birds, especially waterfowl journey by night. All peregrine falcons flying south during the winter have been recorded by me in the daytime only. This is because peregrines have nothing to fear. In the world of birds, only eagles could be a source of danger to the peregrine but the falcon can effortlessly out fly any eagle. All migrants that fly by night are birds that fear interception by hawks, eagles and falcons during daytime.

At one time it was firmly believed by some that certain waterfowl alone possessed the ability to navigate long distances, and that falcons simply followed in their wake. This the worthies argued was but a natural consequence, because in this manner, would, they assumed, falcons remain amply supplied with food on their journey. Very unfortunately for the exponents of this theory, the akward fact that birds other than falcons rarely travel by day, is in itself enough argument to demolish their hypothesis.

Release of Gharials in Natural Habitat

BY

SHYAM LAL

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The gharials young one's are reared in the Crocodile rehabilitation centre for 3 years till they attain a size of about 1.50 m. in length and weigh about 15 kgs. At this stage the gharial juveniles are considered free from danger of being washed away with the current of fast flowing streams and become prey of the predators. The release has to be made under most congenial conditions. So that the juveniles are rehabilitated without any difficulty.

Before the release of the gharials, suitable sites are selected. The sites had the following requisites, which were considered for 1979-80 and 81 release in river Girwa and Chambal.

1—Unpolluted clean water.

2—Plenty of fish to prey upon.

3—Exposed sand banks, sandbars and river rock promonteries to provide place for basking.

4—Small rivulets or side Nallahs to provide shelter when the river swells up during monsoon.

5—Bends in the river below the release sites.

6—Free from human activities such as cultivation etc.

7—Steep sand banks to provide suitable place for nesting.

The time of release also plays a very important role in the rehabilitation of gharials. The best time is after monsoon is over and before the commencement of summer that is from November to March. We must avoid the coldest month of January. This provides sufficient time to the released juveniles to settle down in a suitable place before the monsoon sets in and protect themselves from being washed away with floods.

The young ones reared at rehabilication centre are packed in wooden boxes of 2 × 0.35 × 0.25 metre size with both ends opening. The inner snout side of the boxes are felted with foam to protect snout injuries to the animals. Both end openings of the boxes help in the insertion of the gharials in the boxes and release at the site. The closed sized boxes provide restrain on the movement of the gharial juveniles.

Gharials to be released are marked for identification by clipping of the dorsal crests of the tail as these can be seen readily through the high power telescope. Gharials are measured, weighed and sexed before packing in the boxes. The ratio of the male and female for release should be 1: 3.

The various clip combinations used for identification of release sites, years of release etc., are given in the enclosed diagrams.

The clipping of dorsal crest helps the protection staff to locate the released gharials and to study the movement and degree of dispersal from the released sites.

During 1979 release season 14 gharials were released in river Girwa of Katirniaghat sanctuary and 15 in Chambal river in National Chambal sanctuary. During 1980 and 1981 release seasons 170 and 253 gharials respectively were released in river Chambal in National Chambal sanctuary and 44 released in river Girwa.

The gharials released during 1979 and 1980 release seasons were kept in close supervision of the staff posted there. The observations upto June 1980 show that gharials have moved both upstream and downstream from 0.5 km to 5 km. The details of release made in various release seasons are given in Table 1.

Monitering was started after rainy season, one survey party moved from Pureni downwards to Pachnada, and another to Allahabad from Pachanda, it was noticed that the gharials released at Purenighat had gone several kilometres downstream and reached Allahabad about 600 kilometres away from the release sites. One gharial was captured by fishermen during December 1980 at Gandhi Nagar in Farrukhabad district in river Ganga. This shows that the dispersal of released gharials starting from Purenighat in Chambal river downwards to Jamuna river upto Allahabad and then upstream in river Ganga to Gandhi Nagar.

This proves that there is both upward and downward movement in gharial which can extend upto 800 kms. from the release sites. The Table 2 below gives the dispersal at various levels of releases as per survey carried out in December 1980.

During 1981 release season the benefit of dispersal record were taken and gharials were released in upper reaches of river Chambal. The released gharials are being observed closely, they have moved 1.5 kms. both upstream and downstream.

In Katerniaghat sanctuary, the movement of 1979 release was observed and it was found that the gharials have gone downstream to barrage site, Jalim Nagarghat and then Topaharipurghat in river sharda about 200 kilometers. Some of the gharials have moved upstream in Nepal.

Table 1

S. No.	Place of release	Total number released	Average of measurements taken: Weight (in kg.)	Average of measurements taken: Length (in cm)	Clip combination used
1	2	3	4	5	6
1979-Release season (1st July to 30th June)					
1.	Ambaghat	14	18.4	193	First sets of single row.
	Girwa river of Katerniaghat sanctuary, U.P.	15	14.8	173	———do———
	Total	29			
1980-Release season					
1.	Purenighat Chambal river national Chambal sanctuary. M.P./Raj	50	16.9	176.20	Second scute of single row crest and first scute of the double row crest.
2.	Burenda ghat U.P./M.P.	45	20.2	185.68	Second scute of single row crest and first scute of the double row crest.
3.	Jebraghat U.P./M.P.	30	21.7	184.5	Second scute of single row crest.
4.	Kenjraghat	45	12.2	158.9	Second scute of single row crest and third scute of double row crest.
	Total	170			
1981-Release season					
1.	Katerniaghat (U.P.)	14	12.5	152.3	Second scute of single row crest and 3rd scute of double row crest.
2.	Kuthianaghat Chambal river M.P./Raj.	44	14.4	173.7	Third scute of the single row crest and third scute of the double row crest.
3.	Chineunighat Chambal river	83	14.4	170.8	Fourth scute of single row crest and third scute of double row crest.
4.	Baraulighat Chambal river M.P./Raj.	83	16.4	172.5	Sixth scute of single row crest and third scute of double row crest.
5.	Nagraghat Chambal river U.P./M.P.	43	17.1	173.5	Fifth scute of single row crest and third scute of double row crest.
	Total	297			

Table 2

S. No.	Place of release	Number released	Name and place where observed	Number of observed	Dispersal	
					Upstream	Downstrea
1	2	3	4	5	6	7
1.	Purenighat	50	Purenighat Jaipuria, Gandhi Nagar	12	Upto 7 km.	— 15 km.
2.	Bareniaghat U.P/M.P.	45	Reha to Pinhatghat	16	—	15 km.
3.	Jebraghat U.P./M.P.	45	Jebra to Sirowali	11	—	6 km.
4.	Karjraghat U.P./M.P.	45	Karjra to Pachnada	30	—	25 km. in river Chamb
5.			Pachnada to Allahabad	39	—	400 km. in river Jamuna
6.			Allahabad to Gandhi Nagar	1	—	200 km. upstream in riv Ganga

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Tranquilisation of Indian Wild dog (Cuon alpinus Pallas)

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The population of Indian Wild dogs (*Cuon alpinus Pallas*) has been dwindling. Brander (1927) described the rise and sudden fall of their population in Melghat area (now in Maharashtra). In Kanha they were quite common in 1947 when it was a sanctuary. Their social way of hunting in packs on the smaller sized wild herbivores, carried the notion for them as 'forest pest'. This did not only remained as an impression but actions were taken to reduce their population by shooting. A special licence of 0.22 rifles was obtained for this purpose. Actual number of dogs shot could, however, not be traced out. Their population had drastically declined before the study period Schaller (1967) who could encounter them only once in 1964. Later on, their population again started rising. According to wildlife census data of the park their population increased from 84 in 1975 to 150 in 1980. They have been seen almost throughout the park. One pack of wild dogs has been almost resident in the central Kanha meadow since 1979. Their activity in the vicinity of Kanha provided an excellent opportunity for detailed study. Accordingly, some observations have been taken on their daily activity, hunting, resting, social behaviour and their effect on the dispersal of prey populations etc.

Their colour is so uniform and similar that it becomes difficult to recognise individual members of the pack. However. sex, body size, natural marks (such as cut pinna, any peculiarity in tail, legs, any spot on body) or peculiar behaviour of individuals permits their identification. Still, identification of some members is difficult which is necessary to observe their role in the pack and dispersal from the pack. Therefore ear tags were put in the pinnae of male dog after tranquillisation, which is the main text of this paper.

The tranquilisation equipments

Tranquillisation was done with the help of blow gun rifle of Selinject, Germany (Wiesner 1977). This works on 'air pressure' which is filled in the air chamber of the rifle by a foot operated pump. The air pressure (in barometer) can be read on the pressure guage which is kept according to the distance of the target. By this means, the propulsion energy can be varied according to distance of the target. A maximum of 10 bar pressure can shoot the target at a distance of 30m. The darts use are of the same Company. These are of various capacities from 1 cc to 5 cc. These are made of plastic and consist of air and drug chambers. The drug chamber is filled by required quantity of drug and in case the chamber is not filled completely by drug, it is filled with distilled water. An air pressure is given in the air chamber through rear valve with the help of ordinary syringe. The air pressure always pushes the drug ahead which is stopped by a rubber stopper on the needle with hole on one side. As the dart hits the animal and pierces through the muscles, the rubber stopper on the needle is pushed back opening the needle hole through which drug is injected by the force of the air pressure. The advantages of blow gun rifle is apart from being fairly accurate, no cartridges are required and is almost soundless.

The tranquillisation: In the afternoon of 23 August '1980 the wild dog pack was resting in sal forest about 2 km N-W of Kanha. 2 ml of Innovar-Vet (each ml containing 0.4 mg sublimaze-Fentanyl and 20 mg Inaspine-droperidol) was injected in a male dog (using 3 ml dart) from elephant back at a distance of about 12 m by the blow gun rifle (air pressure 4 bar). The animal can be approached very close from elephant back which makes the darting convenient. After shooting, the dart goes in paraboloid trajectory and hits the target. This has to be kept in mind while shooting and aim should be taken at lower line of the target because from elephant back to the target on the ground, the line of shooting is oblique. As the dart hit at the thigh of the dog, he immediately took it out by mouth and dropped on the ground. Within one minute, the dog fell down and became unconcious. Soon, out of remaining 15 members of the pack, two came close to the darted dog, smelled it, took the dart in mouth and crushed it. The other members of the pack also became conscious of this happening, they also got up and explored the situation, seen the dog, the elephant, the dart and then started moving. After confirming the perfect tranquillisation of the dog by throwing small pebbles etc. we got down from the elephant. Immediately the remaining dogs also moved away. We saw the dog thoroughly. It weighed 16.5 kg and measured 136 cm from nose to tail end out of which tail was 40 cm. Shoulder height 53 cm, body girth 53 cm, neck girth 35 cm. There was foul smell, which may be due to the excretion of faeces while weighing. Probably it was also due to secretion of some glands. Respiration rate was high (160/minute) but temperature was not so (100.2°c). The blood haemoglobin content was 11% as measured on the spot by AO haemoglobinometer. (The instrument compares the absorption of light by haemoglobin in a layer of hemolyzed blood of carefully defined depth with the absorption of a standardized glass wedge.) Yellow ear tags were put in both the ear pinnae. Ticks were collected from the body which were not many. It again excreted faeces aftor 20 minutes. Throughout this proces, the dog was anchored in the neck by a 1.5 m long ketch-all pole. (It is a quick-release snare that permits animal to twist without being suffocated.) When the work was completed (one hour) I sat close by the dog with the ketch-all pole in my hand and gently tapped the dog's fore-head by fingers 5-6 times. The dog suddenly got up and tried to rush. For a moment, I was horrified, but soon I also got up and held the ketch-all pole rigidly and then released the dog by loosening the string. After slowly walking for few steps the dog sat down.

The other members of the pack were not around. The respiration rate came down to 60/minute. It walked quitely with little rest in between. It did not drink water when we sat near a shallow water pool in nalla bed. It regained to normalcy as time passed and in about half an hour after release, it was able to walk and run fairly. Next day morning the pack was observed about 100 m away from the place of darting. The labelled dog was also there. He was always shaking his head and due to presence of ear tags. His condition was normal. After few days he became habituated of ear tags and gradually stopped shaking his head. He remained in the pack upto Feb. '81 and thereafter could not be seen in the pack. Search was made to see this dog in five other packs one each in Kisli, Kariwah, Sonph, Bijadadar and Bishanpura, each being 8 to 20 kms from Kanha on all sides but the labelled dog could not be seen.

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गीली आँखों से वादियों में वह कस्तूरे को तलाश करता रहा

रामेश बेदी

उस साल पुजारी जी का स्थानान्तरण मध्य महेश्वर में हुग्रा था। १९६६ की बात है। पूजा की ग्रावश्यक सामग्री ले कर ग्राधे मई के करीब वहाँ पहुंच गये थे। यह मन्दिर समुद्र तल से ११,००० फीट की ऊँचाई पर एक खुले मैदान में बनाया गया है। सर्दियों में यहाँ बर्फ पड़ जाती है। तब वे इसके कपाट बन्द करके ऊखी मठ वापिस ग्रा जाते हैं। उन्हें हर साल छः महीने वहाँ रहना होता है। ग्रास-पास कोई बाजार नहीं है। राशन, पूजा की सामग्री, ग्रादि छः महीने के लिए वे साथ ले जाते हैं। देवता का प्रतिदिन दूध से ग्रभिषेक किया जाता है। दूध के लिए वे कुछ गाएं भी ऊखी मठ से साथ ले जाते हैं।

वे ग्रौर उनके साथ देवालय के कुछ सेवक उस एकान्त-शान्त स्थान में देवता की पूजा ग्रौर जप-ध्यान में ग्रपना समय गुजारते थे। शाम को वे प्रतिदिन जंगल में ग्रकेले ही घूमने निकल जाया करते थे। उस दिन मन्दिर से कोई दो फर्लांग की दूरी पर गये होंगे। बुरांस का जंगल था। नीचे की भूमि बुरांस के सूखे फूलों ग्रौर सूखे पत्तों से फूली हुई थी। झाड़ियाँ प्रायः नहीं थीं ग्रौर घास भी सूख कर खत्म हो चुकी थी। दूर तक दृष्टि चली जाती थी ग्रौर जंगल की हर चीज साफ दिखाई दे जाती थी। इन जंगलों में भालू रहा करते हैं ग्रौर वे बिना बात इन्सान पर हमला कर देते हैं। जगल में जाते समय उनके ग्रचानक हमले की सम्भावना से सावधान होकर चलना पड़ता है। ग्राँखें ग्रौर कान चौकन्ने रखने पड़ते हैं।

बुरांस का एक बूढ़ा पेड़ तिरछा पड़ा था। धरती के पास ही उसका तना दो शाखाग्रों में बंट गया था। दो शाख के बीच में उन्होंने कोई जानवर बठा हुग्रा देखा। उसकी उभरी हुई बड़ी ग्रांखें छोटे बल्बों के समान थीं ग्रौर कान बहुत लम्बे थे जिन्हें उसने खड़ा कर रखा था। पतले मुँह वाले इस जीव को देखकर उन्हें पहले डर लगा। वे वहीं ठहर गये। वह उनकी तरफ देख रहा था। उन्होंने ऐसा मुग्ध जानवर पहले नहीं देखा था। उन्होंने सोचा कि यह मुझे इतनी पास देखकर भाग नहीं रहा ग्रौर न ही मुझ पर हमला कर रहा है, इस लिए यह खतरनाक तो नहीं होगा। क्यों न इसे जिन्दा पकड़ लूं ?

उन्होंने ऐसा ग्रभिनय किया कि वह उनके इरादे को जान न सका। उन्होंने मुँह फेर लिया ग्रौर धीरे-धीरे दूसरी दिशा में बढ़ने लगे। उन्होंने चप्पल उतार दी जिस से कम-से-कम खटका हो ग्रौर जरूरत पड़ने पर तेजी से भागा जा सके। कनखियों से वे दुशाख पर बैठे जीव को देखते भी जाते थे। उसने समझा कि यह ग्रादमी चला गया है। वे घूम कर दबे पांव उसके पीछे पहुंच गये ग्रौर झट उसे पकड़ लिया। वह चिल्लाने लगा ग्रौर उनकी गोदी में से छूटने के लिए जोर लगाने लगा। उसके चिल्लाने का शोर इतना ऊँचा था कि उसे सुनकर पालसी के कुत्ते भाग ग्राये। कोई नई बात समझ कर पालसी भी दौड़ा ग्राया। उस ने बताया कि यह शिल्ली का बच्चा है।

वे उसे सुरक्षित मन्दिर तक ले ग्राये ग्रौर गोशाला के एक खाली कमरे में रख दिया। एक महीने तक उसे केवल बकरी का दूध पिलाया। वह खुद नहीं पीता था। दूध पिलाने के लिए एक सहायक की जरूरत पड़ती थी। एक ग्रादमी उसका मुँह खोलता था ग्रौर दूसरा ग्रादमी गिलास से जरा-सा दूध डाल देता था। इस

तरह धीरे-धीरे उसे आध पाव दूध पिला देते थे। शाम को भी इतना ही दूध पिलाते थे।

वह दिन भर गोशाला में बैठा सोता रहता था। शाम चार बजे उठ जाता था और घूमना शुरू करता था। जंगल में भी कस्तूरे की यह आदत होती है। वह दिन भर आराम करता है और शाम आने पर उठ कर चुगने जाता है।

इस कमरे का फर्श कच्चा था जिसमें सूखी मिट्टी बिछी थी। उसके बैठने की जगह पर सूखी घास का गद्दा बिछा दिया गया। कपड़े से पोंछ कर उसकी देह को साफ रखा जाता था। वह स्वयं स्वच्छ आदतों वाला जीव था। अपने सोने के कमरे में न पेशाब करता था, न मींगनी करता था। साथ के कमरे में जा कर पेशाब और मींगनी करता था। अगले खुरों से मिट्टी खोदकर वह पीछे फेंकता था, जिस से मींगनी ढक जाय। कस्तूरे के खुर नोकीले होते हैं, अगली टांगें जरा छोटी होती हैं और पिछली लम्बी होती हैं।

वह नर था। वयस्क नरों में ऊपरले दो दाँत तीन-चार इन्च लम्बे, हाथी के दांतों के समान मुंह से बाहर निकले हुए, नीचे की ओर गोल घूमे होते हैं। इन्हें शिकारी दांत कहते हैं। इसमें भी वे दोनों दांत जरा बड़े थे, जो मुंह खोलने पर दिखाई देते थे।

एक महीने बाद उसे गाय का दूध देने लगे। इसमें जरा-सा गुड़ मिला देते थे। गुड़ से हाज्मा ठीक रहता है। दूध से भरा हुआ गिलास हाथ में पकड़ कर मुंह के आगे रखते थे, उसके अन्दर मुंह डालकर वह सारा दूध पी जाता था। कस्तूरे का मुंह आगे से काफी पतला होता है, इसलिए वह गिलास की तंग पेंदी तक भी पहुंच जाता; था, वह दूध की एक बून्द भी नहीं छोड़ता था। हाथ में गिलास न पकड़ा हो तो पीने की उतावली में वह गिलास को गिरा देता था। सुबह और शाम वह आधा-आधा सेर गाय का दूध पी जाता था। एक गाय का पूरा दूध बच्चा पीता रहा। यहाँ की गाय इतना ही दूध देती है।

दूसरे महीने, आषाढ़-सावन (जून-जुलाई) में उस के दूध के भोजन में हरी कोमल घास शामिल कर दी गई। घास के अलावा उसे अनेक प्रकार के कोमल पत्ते दिये गये। खरसू की पत्ती, कुकड़ी (लाल फुल होते हैं) की पत्ती, बज्र-दन्ती के पत्ते, चूना बुग्गी—दरअस्ल वह सभी कुछ खा जाता था। कस्तूरी मृग पालने में भोजन की समस्या तो बिल्कुल नहीं है। लोगों की आम धारणा है कि यह जीव किसी खास प्रकार की घास-पत्ती ही खाता है; ऐसी बात नहीं। दूसरे हिरणों और बकरियों के समान यह अनेक प्रकार की घास-पत्ती को खाता है।

मालूम पड़ता है कि कस्तूरी मृग की सबसे अधिक प्रिय आहार खरसू की कोमल पत्ती है। मध्य महेश्वर के आस-पास खरसू काफी है। कहा जाता है कि भले ही बर्फ पड़ जाय, उस के नीचे घास ढक जाय, मध्य महेश्वर का मन्दिर भी बर्फ में डूब जाय पर खरसू न डूबे तो कस्तूरी मृग को परवाह नहीं। वह अकेले खरसू खाकर बर्फीले दिन गुजार सकता है। खरसू मिलता रहे तो वह मध्य महेश्वर नहीं छोड़ता।

पुजारी जी के पास बिल्ली का एक बच्चा था। उस की उम्र भी बीणा के बच्चे के समान थी। उसे गोदी में लेकर पुजारी जी अक्सर बीणा के पास चले जाते थे। वह डरता नहीं था। धीरे-धीरे बिलूगड़े को बीणा के साथ एक ही कमरे में रखना शुरू कर दिया गया। दोनों एक-दूसरे को पहिचानने लगे, उन में प्रीति बढ़ती गई। बीणा दिन भर अकेला रहता था, उसे साथी चाहिए था, वह मिल गया। वे दोनों

एक साथ ही घास के गद्दे पर सो जाते और तरह-तरह की खेलें करते। शाम को बीणा के गले में रस्सी बाँध कर मन्दिर के अहाते में घुमाने ले जाते, बिलूंगड़ा भी साथ चलता। उसे बांधने की जरूरत नहीं थी क्योंकि यह पालतू बिल्ली का बच्चा था और इसके भागने की सम्भावना नहीं थी। मध्य महेश्वर में दर्शनों के लिए आने वाले तीर्थ-यात्रियों को इन अद्भुत मित्रों के खेल-तमाशे देखने में बड़ा आनन्द आता।

पुजारी जी के पास राशन में लाई हुई अरहर की दाल थी। रात को मुट्ठी भर दाल भिगो देते थे, सुबह तक वह पानी पी कर फूल जाती थी और नर्म बन जाती थी। इसे वे बीणा के आगे एक कटोरी में रख देते थे जिसे वह खा जाता था। घोड़ा, भैंस, आदि घास खाने वाले पशुओं की पुष्टि के लिए अक्सर चने की दाल खिलाई जाती है। उस के लिए भी ऊखीमठ से चने की दाल मंगा ली गई और उसे भिगो कर खिलाने लगे। दिन भर में दो छटांक दाल वह खा जाता था। एक छटांक सुबह और एक छटांक शाम। सुबह के भोजन के लिए रात को भिगोते थे और शाम के भोजन के लिए सुबह भिगोते थे। उस के भोजन के बरतन खाने के बाद उसी तरह मांजे जाते जैसे पालक के बरतन मांजे जाते थे। उस के कमरे में उसी तरह झाड़ू लगाई जाती थी जैसे अन्य कमरों को बुहारा जाता था। उसे हर तरह से साफ-सुथरा रखा जाता था।

कोमल बर्ताव, स्नेहपूर्ण लालन-पोषण और सन्तुलित पौष्टिक आहार मिलते रहने से वह खूब हृष्ट-पुष्ट हो गया था। उसकी उम्र का छठा महीना भी सन्तोषजनक गुजर रहा था। छठे महीने में उसकी दैनिक खुराक थी: चने या अरहर की दो छटांक दाल, गाय का एक सेर धारोष्ण दूध और अनेक प्रकार की घास-पत्ती।

छः महीने की उम्र का बीणा बड़ा ताकतवर और पुष्ट बन जाता है। उस का वजन दस कि.ग्रा. के लगभग होगा। उसे उठाना मुश्किल था। वैसे भी वह गोदी में उठाया जाना पसन्द नहीं करता था। जबर्दस्ती उठाने का प्रयत्न करते थे, तो वह खुर मार कर जख्मी कर देता था। इस आदत में भी वह अन्य मृगों के समान था क्योंकि मैंने जंगल में चीतलों को खुर द्वारा चोट करते देखा है।

शाम चार बजे वह कमरे के अन्दर खेलना शुरू करता था। उसकी खेल भी अजीब थी। उसका कमरा पन्द्रह फीट चौड़ा और पन्द्रह फीट लम्बा रहा होगा। दीवार से दस फीट पीछे हट कर वह खड़ा हो जाता था और तब उचक कर सामने की दीवार के ऊपर उछल जाता था। उस के खुर दीवार पर टकराते और वह नीचे आ जाता। चिकनी मिट्टी से लीपी हुई दीवार के ऊपर उस के पैने खुरों से खरोंचें पड़ गईं थीं। ये निशान फर्श से आठ और दस फीट के बीच की ऊँचाई पर पड़े थे। छलांगें लगाने में उसे इतना मजा आता था कि वह बार-बार कूदता था। प्रकृति में हिरण जो चौकड़ी भरा करते हैं, एक प्रकार से, यह उसी का पूर्वाभ्यास था। आध - एक घण्टे तक लगातार छलांगें लगाने के बाद वह थक जाता था। उस की जीभ बाहर लटक जाती थी। थक कर चूर-चूर होकर वह अपनी गद्दी पर जा बैठता था। कठोर श्रम के बाद उस की भूख चमक उठती थी। उसे भोजन दिया जाता था जिसे वह सदा बड़ी रुचि से खाता था।

इसके बाद उसे कमरे के बाहर टहलने के लिए ले जाते थे। शुरू में गले में रस्सी बांध कर उसे अपने पीछे चलाते थे, जैसे कि कस्तूरे को चलाते हैं। नये बच्चे को रस्सी न बांधते तो उस के जंगल में भाग जाने की सम्भावना थी। कुछ दिनों में वह हिल गया

और अपने आप कुत्ते की तरह पीछे-पीछे आने लगा।

छोटी उम्र में वह बकरे की तरह बोलता था। बड़ा हो जाने पर नथुनों से सीटी जैसी आवाज करता था। यह फनियर सांप या रसल्स वाइपर की लम्बी फूत्कार के शब्द के समान होती है।

इसके कद और सुन्दर गठन को देखकर लगता था कि यह वयस्क हो गया है। सम्भवत: कस्तूरी मृग एक साल में सन्तान पैदा करने के योग्य बन जाते हैं।

जंगल में कस्तूरी मृग एक ही जगह मींगनी करता है। यह आदत पालतू बच्चे में भी देखी गई है। यह भी नियत स्थान पर मल-मूत्र विर्सजित करता था। बीणा की मींगनी में कस्तूरी की गन्ध रहती है और कुछ दूरी तक फैली होती है। शिउली की मींगनी में गन्ध नहीं आती। शिकार करने के लिए बीणा की तलाश में निकला हुआ बन्दूकी मींगनी को सूंघता है। सब से पहले तो वह यह जानता है कि यह बीणा की है या शिउली की। सामान्यतया बन्दूकी को केवल बीणा को तलाश होती है। फिर वह देखता है कि मींगनी ताजी है या बासी। ताजी मींगनी गीली और चमकीली होती है। ज्यों-ज्यों समय गुजरता जाता है ये बदरंग होने लगती हैं। ताजी हों तो बन्दूकी को अपने लक्ष्य तक पहुंचने की आशा बढ़ जाती है। बीणा की तलाश सम्बन्धी सरगर्मियां तेज हो जाती हैं।

बीणा के कई शिकारियों ने और मन्दाकिनी घाटी में सर्व-साधारण ने मुझे बताया कि बीणा की मींगनियों को उसका जोड़ीदार शिउली मिट्टी डाल कर ढक दिया करता है जिससे गन्ध हवा मे न फैले और बन्दूकियों को उस का पता न चले। मुझे इस बात की सच्चाई में सन्देह प्रतीत होता है। बन्दूकियों की ऐसी धारणा बनने का कारण स्पष्ट है कि वे मिट्टी से ढकी हुई मींगनियां जंगल में देखा करते हैं। परन्तु शायद ही कोई ऐसा बन्दूकी हो जिसने बीणा को मींगने करते हुए देखा हो और बाद में शिउली को उस पर मिट्टी डालते हुए देखा हो। बन्दूकी में इतना धैर्य कहां? बीणा को देखते ही उसे सैकड़ों रुपये की थैली हासिल करने के सपने फलीभूत होते दिखते हैं। वह क्षण भर भी चूक गया तो बीणा गजों लम्बी चौकड़ी भरता हुआ हिरन हो जायगा।

इस विषय पर विचार करते हुए एक अन्य बात को भी नजरन्दाज नहीं किया जा सकता। कस्तूरा सदा अकेला रहता है। बीणा और शिउली अलग-अलग रहा करते हैं। जोड़ा बनाने के दिनों में ही कुछ समय के लिए इकट्ठे होते हैं। मेरा विश्वास है कि पालतू बीणा जिस तरह अपनी मींगनी पर खुद मिट्टी डालता है उसी तरह जंगल में भी होता है।

एक ही जगह पर कोई छ. इन्च ऊँची और एक किलो तक वजन की मींगनी की ढेरी जमा हो जाती है। कभी-कभी मध्य महेश्वर की सड़क पर भी मींगनी के ढेर मिल जाते हैं। इससे पता चलता है कि कस्तूरी मृग अपने निवास के अलावा अपते रोज के आने-जाने के मार्गों में भी मल-मूत्र विसर्जन के स्थान नियत कर लेता है। एक ही ढेरी में पुरानी और उसी दिन की मींगनी भी मिल जाती है।

शिकारी दांतों की उपयोगिता के बारे में अनेक अटकलें हैं। जंगली सूअर और हाथी में भी ऐसे लम्बे दांत होते हैं, जिन की उपयोगिता का हमें भली भांति ज्ञान है। आत्म रक्षा, दुश्मन पर हमला और आहार जुटाना —तीनों कामों के लिए इनका उपयोग किया जाता है। बीणा भी सम्भवत: इनसे ये तीनों कार्य सम्पन्न करता है। बन्दूकियों के पास मैंने जो खालें देखी हैं उन पर कई बार लम्बी खरोंचें पड़ी रहती हैं

जो बहुत सम्भवत: जोड़ा बनाने के दिनों में प्रतिद्वन्द्वी बीणा के शिकारी दांतों की चोट द्वारा पैदा की गई हों। घास और कुछ जड़ें खोदने के काम भी ये दांत आ सकते हैं।

शिकारी दांतों की उपादेयता के बारे में एक अजीब विश्वास गढ़वाल की कस्तूरे वाली घाटियों में फैला हुआ है। उनकी धारणा है कि इन दांतों से यह लेण्डर सांप को मार-कर खा जाता है। कुछ लोगों के कथनानुसार यह सांप कुल डेड़ फीट लम्बा होता है जब कि दूसरे लोगों ने इसकी लम्बाई मुझे एक डेढ़ गज बताई है। इस का रंग मटियाला-सलेटी, लगभग काला या लाल होता है। यह कंद्राओं में रहता है और श्रावण, भाद्रपद तथा आश्विन के महीनों में अधिक दिखाई देता है। इसकी पूंछ नहीं होती जिससे मुँह और पूंछ के दोनों सिरे एक समान दीखते हैं। यह बहुत धीरे-धीरे चलता है। इस में विष बहुत कम होता है। यह मनुष्य को काटता नहीं। इसे हाथ से पकड़ कर उठा लें तब भी नहीं काटता। यदि कभी काट ही खाये तो पकड़ को आसानी से नहीं छोड़ता। छुड़ाने के लिए लेण्डर के सिर पर जलता हुआ कोयला लगा देते हैं।

लेण्डर के बारे में मुझे जो बातें सुनाई गई उससे यह दुमुही से मिलता-जुलता कोई सरी सृप प्रतीत होता है। प्रचलित विश्वास के अनुसार लेण्डर के खाने से ही बीणा में कस्तूरी पैदा होती है। यदि लेण्डर न खाये तो कस्तूरी बनेगी ही नहीं। शिउली लेण्डर नहीं खाती। हिमालय वासियों को यह विश्वास कितना दिलचस्प है?

पाठकों को मैं अविभाजित भारत के उत्तर-पश्चिम सीमा प्रान्त के पहाड़ी इलाकों में रहने वाले एक बकरे के बारे में यहां बताना चाहूंगा। उस के बारे में जिस प्रकार की बातें प्रचलित हैं वे बहुत कुछ ऐसी ही हैं। इस बकरे का नाम मारखोर है। यह नाम दो शब्दों से मिल कर बना है। मार का अर्थ सांप है और खोर का अर्थ खाने वाला हैं। प्रचलित विश्वास के अनुसार इस का भोजन मुख्यतया सांप हैं। सांप खाने के बाद जब यह जुगाली करता है तो उस के मुंह से गिरे झाग जम कर कठोर बन जाते हैं। यह सांप का मनका है और सांप का विष उतारने में बेजोड़ पदार्थ।

मुझे सन्देह है कि बीणा सांप खाता है। वह घास-पात खाने वाला शाकाहारी मृग है।

अक्तूबर में मध्य महेश्वर में सर्दी बड़ जाती है। मन्दिर के पट बन्द कर दिये जाते हैं। कीमती मूर्तियों को ऊखी मठ ले जाते हैं और उनकी वहीं पूजा की जाती है।

सर्दी बढ़ जाने से घास-पत्ती सूख गई थी। मौसम की पहली बर्फ पड़ गई थी जिससे रही-सही घास भी जल गई थी और बर्फ के नीचे दब गई थी। बीणा के लिए घास-पत्ती लाना कठिन हो गया था। गायें भी ऊखी मठ भेज दी गई थीं जिससे बीणा के लिए दूध भी नहीं बचा था। पट बन्द होने में अभी पन्द्रह दिन बचे थे। इन विषम परिस्थितियों में बीणा को पन्द्रह दिन रखना मुश्किल था। सोलह अक्तूबर को बीणा को छोड़ दिया गया।

आकाश स्वच्छ था। शाम के चार बजे थे। गौशाला में से बीणा को पुकारा। उसके साथ बिल्ली भी आ गई। मन्दिर से कोई दो सौ गज दूर तक बीणा को पहुंचा कर पुजारी जी लौट आये और गौशाला के बरामदे में बैठकर उसे देखते रहे। बिल्ली और बीणा ने चहल-कदमी शुरू की। उन का रुख जंगल की तरफ नहीं था। धीरे-धीरे दोनों ने मन्दिर की परिक्रमा पूरी कर ली। वे फिर मन्दिर के इर्द-गिर्द वृत्त में

घूमने लगे। उन की इस परिक्रमा का घेरा पहले से बड़ा हो गया था। खुले वातावरण में दोनों साथी कभी उछलते, कभी भागते, कभी रुकते, रास्ते में पड़ने वाली घास-पत्ती को देखते और कभी बीणा उन में मुंह भी मारता। वे बराबर मन्दिर की परिक्रमा करते रहे। हर बार पहले की बनिस्बत उनके दूसरे चक्कर का दायरा बढ़ता जाता था। वे अब बुरांस और खरसू के जंगल की सीमा में घुस रहे थे। बीणा यहीं–कहीं जनमा था। उसकी मां उसे इसी बुरांस की दोशाख में बिठाकर जंगल में चुगने गई थी। इस बात को छः महीने का लम्बा अरसा गुजर गया था। चट्टानों पर उगे हुये झाड़ीं और द्रख्तों से छन कर आती हुई बरफीली हवा के झोंके ने बीणा के मन में पुरानी स्मृतियों को जगा दिया। जंगल का उन्मुक्त वातावरण उसे अपने अनुकूल महसूस हुआ। सूखे जंगल में उसने दूर तक निगाह दौड़ाई।

चौतरा की कंटीली झाड़ियां, हिसूल के कण्टकित कुञ्ज, खरसू के ऊँचे पेड़, बुरांस के झाड़, देवरिंगाल की लहराती हुई लचीली टहनियां-सभी उसे बुला रहे थे, अपने पुराने साथी का स्वागत करने के लिए तैयार थे।

सांझ के छः बज रहे थे। बीणा ने पीछे देखा। मन्दिर की पथरीली दिवारें सूर्य की फीकी किरणों से अब भी प्रकाशमान थीं। उसने अपने बचपन के साथी बिल्ली को देखा। बगल की चट्टान पर बैठी वह मद्धम सुर में म्याऊं-म्याऊं कर रही थी।

बीणा ने जंगल की ओर छलांग लगाई। दो बार छलांगों में वह वन के अन्दर घुस गया और कुछ ही क्षणों में दृष्टि से ओझल हो गया। बिल्ली भी उसके साथ चली गई।

घाटी में अंधेरे ने कब्जा कर लिया था। चारों ओर फैले सन्नाटे में काकड़ की कर्कश आवाज भी तो नहीं सुनाई देती थी।

बिल्ली का खाना कटोरी में परोस रखा था। वह अछूता ही पड़ा रहा। पुजारी और उनके साथी सो गये। सुबह उठ कर देखा तो बिल्ली लौट आई है। पुजारी जी ने बिल्ली को गोदी में उठाया और उससे बीणा की कुशल-मंगल पूछी। दुलार में म्याऊं-म्याऊं———करके वह चुप हो गई।

पुजारी जी ने बड़ी आत्मीयता और लगन से बीणा को पाला था। उन्हें उस का विछोह सताने लगा। उन की रसोई में खाना तो बनता पर उन के गले के नीचे अन्न नहीं उतरता। तीन दिन तक उन्होंनें खाना नहीं खाया। एक दिन वे उसे तलाश करने निकले। आधा मील तक उन्होंने झाड़ियों को देखा। बीणा नहीं मिला। शाम को चार-पांच बजे वे हर रोज जंगल में घूमने जाते। उनकी सरस आंखें पत्थरों में बीणा कों तलाश करतीं। वह कहीं नहीं दिखाई दिया।

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Snake Yagnas—An Appeal

BY

R. TIRUVENGADAM

BAN THESE SNAKE YAGNAS OR 'SARP YAGNAS'

Snakes usually like and prefer seclusion and calm. They are normally timid and nervous and try to escape and seek cover when disturbed. A snake attacks or bites ONLY when it is brought to bay and left with no way to escape, or when a person accidentally treads on it. In winter in temperate climates and particularly in cold areas, they usually hibernate and live on very little or even no food at times.

Since the last two years there has been a disturbing increase in the number of youngsters, (mostly all South Indians) who without any concern or even a thought for the poor snakes' welfare conduct what they call 'record breaking and highly daring' experiments of living with a number of venomous Snakes inside a specially built wood and glass cabin. All these youths are self-declared and self-certified Herpetologists.

These present day SARP YAGNAS are nothing, I emphatically stress and repeat, NOTHING but MONEY-SPINNING rackets. They are a total HOAX in which the poor Snakes in the cabin are the Sad, Most Unfortunate and Helpless victims and targets of human cruelty, selfishness and exploitation. The real truth is that in such a YAGNA it is not the human whose courage and endurance is tested, but that of the poor Snakes themselves as they have to rally all their courage and endurance to put up with the nuisance of having to stay in such close company of the most dangerous and destructive of ALL LIVING CREATURES and suffer his disgusting and torturesome presence and manhandling as he shows them to the endless steam of innocent spectators who are ignorant of the true facts about Snakes and create a lot of disturbance in their curiousity and excitement.

The first of such purposeless and damaging experiments in India was carried out by one such self-certified Herpetologist of Poona, Nileem Khaire. In his 72 hours feat over 14 snakes died due to Hostile and Unnatural conditions, Constant Disturbance, strong lighting and frequent manhandling while being shown to the stream of visitors in lakhs. A Snake is cold blooded and has a body temp. much lower to ours. When a Snake is held for more than a few minutes, there is a flow of temperature (heat/warmth) from our body to the Snake's which is harmful to the Snake and causes irritation and great uneasiness. Some Snakes like the Banded Krait attacked and killed a few Snakes including 3 or 4 Cobras! They become thoroughly uneasy and upset at the slightest disturbance. They do not feed unless are in an atmosphere of favourable temperature and calm environment. All Snakes without exception are delicate and it is, therefore, little wonder that so many Snakes die when constantly exposed to so many hostile factors in such 'Living with Snakes' experiments. These self-styled Herpetologists call themselves 'Friends of Snakes'. I am convinced that they are without any doubt THE BIGGEST AND WORST ENEMIES OF SNAKES. All they achieve is a lot of publicity and earn lakhs of rupees in a very short time and what good have they done to the Snake ? What have they done for the highly endangered future of these poor reptiles ? What have they contributed towards the conservation of these endangered species ? What have they done to remove all the false beliefs of snakes from the minds of the majority of the people and enlighten them to the real facts concerning snakes ? NOTHING, ONE GLARING ANSWER TO ALL THESE QUESTIONS—NOTHING.

One such young man from the South, through constant yagnas like these in a number of places earned over Rs. 7.00 lacs as profit after accounting for all expenses and the tax he had to pay to the Municipal Authorities at those places. And he has gone away to Arab Countries to earn more! In his experiments, on an average 3 snakes died every day and spanning all his experiments at different places, over 130 snakes have laid down their lives in silent sacrifice. Another youth was not so lucky—He was bitten by a healthy cobra and was rushed to the hospital for treatment. There at the hospital it was found that the anti-venom injections on hand were past their validity date and thus impotent and useless in that hour of danger. The youth suddenly lost courage and though urgent efforts had been set in motion to get anti-venom within an hour, he, like any other ignorant villager became pyschologically totally defeated and fear and shock ultimately ended his life. How can such a person call himself an Expert ? How can he educate others ?

Just by catching snakes and keeping them or maintaining them, a person cannot become Expert or qualify as a Herpetologist. If we go by that theory, then EVERY SNAKE CHARMER (MADARI) we see on the roads is a Herpetologist ! WHAT NONSENSE ! But I can say one thing in favour of these Madaris—they are tough and they have guts. If they meet with an accident in their profession, they accept the bitter result with a smile and face it with courage. Our young educated experiment crazed Herpetologists are all Hypocrites—only posing as friends of Snakes.

Regarding the latest show that was on at Baroda, the young hero here is Parthasarathy of South India. He was bitten by a cobra during the show. He was treated at SSG Hospital and resumed his feat. The papers sang praise for his courage in block letters 'COBRA BITE DOES NOT STOP HIM !'. Why did the Cobra bite him ? Because, he mishandled it while showing it to people.

The experiment of living with Snakes is aimed at highlighting the fact that 'SNAKES WILL NOT OR DO NOT HARM OR BITE unless they have been harmed, provoked or mishandled'. So the moment you mishandle the snake and provoke it to bite in self defence your whole purpose is defeated. You yourself have not allowed the snake to leave you alone. After a cobra bite you resume the feat—here you earn great praise as a Hero, a dare devil with boundless courage ! Getting bitten by a snake is no heroism or bravery. It clearly indicates carelessness and inefficiency of the handler ! He is not an expert at all, he, in reality, is only a stupid and foolhardy person likely to meet violent death any time luck runs out.

The glass cabin in which these experiments are performed is fairly high with sufficient room for the snakes to creep and hide along the walls. Moreover, the constant disturbance by visitors and exposure to strong lighting keeps them absolutely still and inactive due to uneasiness and fright. The Herpetologist wears thick clothing, protective shoes, has a snake stick and an Assistant—So where is the bravery ? He is not really exposed to any danger.

Nileem Khaire's 72 hour feat was vigilantly supervised by the famous snake expert from Calcutta, Dr. Dipak Mitra, Director of the Calcutta Snake Park. Dr. Mitra, a Ph.D. in Zoology and Master of Toxicology which is the study of venom, has 29 years of practical experience of all types of snakes and he also manufactures anti-venom. With Dipak Mitra looking after his safety, where was the question of courage or bravery involved that Khaire had to display ? Conceding that Khaire did carry out a remarkable feat to prove that snakes do not harm or attack without provocation, what is the purpose behind the alarming number of young South Indians conducting such feats one after another. When Khaire has proved it once, what is the sense in every Tom, Dick and Harry performing the same thing again and again ?

If there was really anything beneficial to the snakes and their future in such experiments, then I am sure that celebrated experts like Dr. Romolus Whitaker, Dr. Harry Miller, Dr. Dipak Mitra would have themselves conducted such projects. They are the real experts and true friends and protectors of snakes. Another well known Toxicologist and Authority of Snakes, Dr. P.J. Deoras of Haffkine Institute has always been strongly against such experiments.

I am indeed very sad and heart broken that the Government of Gujarat and the Forest Department have given permission to these South Indian youths presently performing in Baroda and Nadiad. It is a pity that such exploitation was allowed in Baroda where the headquarters of the Special Chief Conservator of Wild Life and the Chief Conservator of Forests is situated. I think the youth will perform next in Ahmedabad. As per an article in the 'Jansatta' dated 26.11.1981, two jeeps have been placed at the disposal of the Herpetologist performing at Nadiad who daily goes out to catch snakes from nearby areas and is so skilled that he caught as many as 350 snakes in about 3 days. This intensive snake hunting is proof enought that the Herpetologist needs a large reserve supply of snakes to replace the many that die in his experiment. Snakes are protected species and come under the Wild Life Act. How has the Forest Department allowed these people to catch so many snakes without licence ? And on what ground have they been permitted ? And by whom ?

If Dr. Romolus Whitaker has to send a snake or any reptile to Dr. Reuben David at our Zoo, then both of them are required by rules to obtain permission to do so. When such celebrated conservationists abide by this discipline, how can the Forest Department sit quiet when these Herpetologists bring hundreds of snakes from their States and also catch hundreds here in Gujarat ? I hope the Government gives this their very special attention and takes urgent action to stop this robbery and loot of our wild life, in addition to the prevailing exploitation.

I have, in detail, presented the true facts about snakes and also exposed to you the real purpose behind these experiments as money spinning rackets and sincerely beg you, Excellency and Hon'ble Shri Madhavsinhbhai to please give this your urgent attention and FORTHWITH BAN ALL SUCH SNAKE YAGNAS IN ENTIRE GUJARAT STATE. Allow me to inform you that the Government of West Bengal and the Government of Kerala have already banned these yagnas and one Dr. Tam Namby was promptly stopped by the Police in a Kerala Town and instructed to close down immediately. I salute the Government of these two States for their understanding and dedication towards conservation of reptiles. I further appeal to the religious minded and peace loving people of Gujarat "not to be led away and impressed by these Yagnas". The people of Gujarat have always strongly resisted any form of cruelty, exploitation and injustice and I am sure they will join us in condemning this cruel exploitation of the poor snakes. I also appeal to all leading Organisations like Lions Club, Rotary Club, Jaycees, Junior Jaycees, Leo's Club, I.M.A., Medical Council, Red Cross, etc., to please unite and put forth a very strong effort to end these yagnas and save the helpless snakes from cruel exploitation and torture. The wealth of wild life in Gujarat is the treasured and proud property of all of us and we must not allow our Wildlife to be harrassed, tortured and exploited by outsiders in our own State.

Snakes Yagnas are Himsa to the poor Snakes and in this land of Bapu's ahimsa, we cannot allow such cruelty to be perpetrated in the Mahatma's own home where he practiced and propagated AHIMSA with courage, love and truth which has no parallel in the world. Once again I pray, please ban these SNAKE YAGNAS !

I have discussed all this in detail with Dr. Reuben David F.Z.S. I am indeed happy that Dr. Reuben David and other eminent conservationists have approved of my views on the Snake Yagnas and assured me of their full support in my efforts to safeguard the future endangered reptiles.

Letter to Sri Kailash Sankhala about his article "Wing the Wildlife Wing" in Cheetal Vol. 22 (4) and 23 (1)

S.P. SHAHI

I am entirely in agreement with you when you say at page 6" . ...The Chief Wildlife Wardens were only in name, more to meet the pressure of the Government of India's letters and communications. They have no jurisdiction over even Sanctuaries and National Parks. The Chief Wildlife Wardens are miscellaneous men in the office of the Chief Conservator of Forests". My own experience in my unfortunate State of Bihar confirms what you write. The other day I learnt that situation in West-Bengal is no better. Though, they have a very efficient man as Conservator Wildlife, he has no jurisdiction on any Sanctuary. He mostly does the routine nature of work in CCF's office. CCF himself is the Chief Wildlife Warden.

I also agree what you say at page 8 where you have quoted Prime Minister's observations "I cannot avoid feeling that Forest Departments continue "to treat wildlife as a peripheral and unimportant matter". Perhaps with the exception of Madhya Pradesh, Uttar Pradesh, Gujrat—I do not know about Rajasthan which you know best-environment within the Forest Departments not conducive to wildlife preservation. In my own State even people trained in wildlife management are posted on non-wildlife jobs.

You are aware that Wildlife (Protection) Act 1972 is being amended. Mr. Samar Singh and other Committee members have been sitting 10 AM to 6 PM with a small lunch break. Several sittings have been held and the work almost done. I have often wondered; with most States being indifferent whether all the labour being put in, will bear even small-size fruits in States.

I am, however, not certain when you state at page 11"......that the only source of getting right type of wildlife personal is still the Forest Department. There are a number of talented men outside the Forest Service viz. John Singh who has worked on wilddog and obtained his Phd on this species. I met Dr. Vijayan, another young person who has obtained his Phd on wildlife. He is at present working in the Kerala Forest Research Institute. There are a few others who in my view have picked up the wilderness life style better than many in the Forest Service. These men should be persuaded to join the main stream. You will pardon me for being so forthright in my views.

As early as 1973 Prime Minister Indira Gandhi in her personal letter to all Chief Ministers had suggested"......Forest Officers and field staff may be given option to come to the Wildlife Service. Some special pay may be given as incentive. However, once having opted for it, these officers will not be allowed to go back to the regular line......alternatively an officer may be given promotion in the wildlife service as and when his promotion in the parent service becomes due......". How many States have called for such a option ? Only then you would be in a position to say that Forest Department would be able to meet all wild-life management needs. I have a hunch that even with 'One stage promotion' incentive as suggested by you there may not be enough men opting for 'Wildlife Wing'. No one will be happier than myself if I am proved wrong.

I have heard authorities in Krishi Bhavan mention about 'sub-cadre' in the IFS. What exactly this means ? I have a feeling, no one is clear about.

The Committee that Government of India had setup for recommending Legislative measures and Administrative machinery for ensuring environmental protection in para 4.23 states"......The Committee therefore reiterates that for effective and scientific management of such reserves a special sub-cadre of scientific personnel be created within the Forest Departments of States and Union Territories......The personnel should not be interchangeable with those in regular forest services, but should be assured their career advancement within their sub-cadre by extending the concept of *flexible complementing*". This was a year back. What has happened over a whole year ? Has any progress been made to give a concrete shape to this ? Perhaps your views of 'One Stage Promotion', 'Sub-cadre concept and 'Flexible complementing' all converge to the core of the matter i.e. specialised well trained personnel within the Forest Service dedicated to conservation for their entire service career is the need of the hour. But I do not see any attempt being made to catch the bull by the horn to get things going.

Forestry and wildlife are on the Concurrent list in our Constitution. While no one would advocate that Centre should interfere in the day to day wildlife administration; it is hightime Centre exercises its constitutional authority to build an efficient administrative infra-structure in each State for wildlife administration, something akin to the initial recruitment to the IFS which it did for each State. Today the position is that most of the States (exceptions apart) do not have any worthwhile machinery to implement the provisions of the Wildlife (Protection) Act 1972, nor are they bothered to have one.

I am happy that you have given some thought to this matter. People like you, VB Singh (UP), JJ Dutta (MP) SR Choudhary (Orissa) VB Saharia (DEHRA DUN) should sit together and submit to Krishi Bhavan a concrete proposal keeping in mind the concepts of 'One stage promotion'; Flexible complementing', and sub-cadre, or perhaps the initiative has to come from the Joint Secretary Mr. Samar Singh himself.

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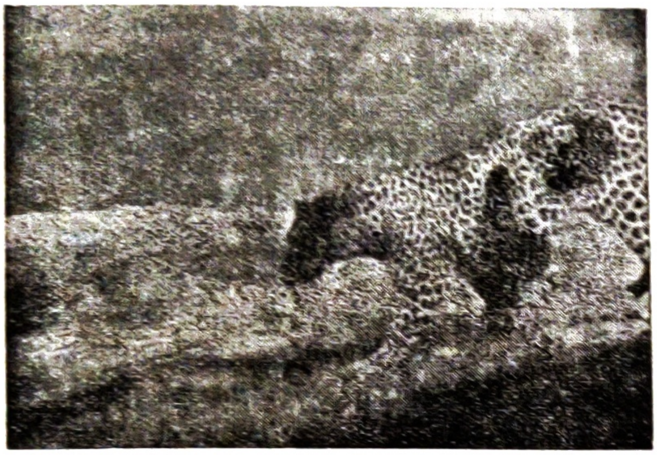

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Write to :—

CONSERVATOR OF FORESTS
Wildlife Preservation Organisation
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LUCKNOW

Tel : Wildlife :: *Phone :* 26140

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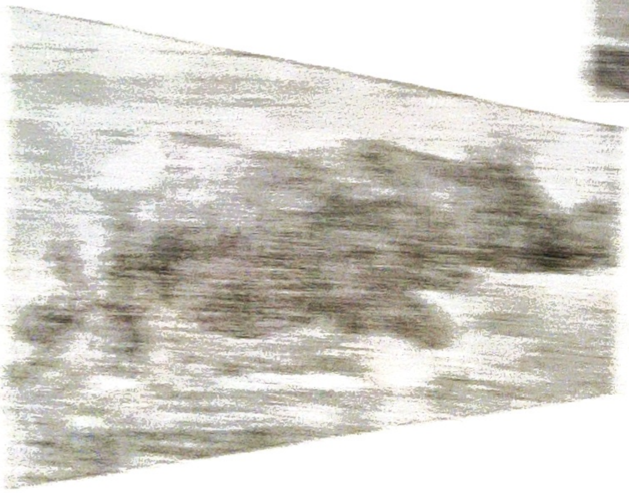
VISIT



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For details —

DIVISIONAL FOREST OFFICER
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&

FOREST UTILISATION OFFICER
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Appeal

The Wildlife Preservation Society of India has purchased the building, 7, Astley Hall and so now has a home.

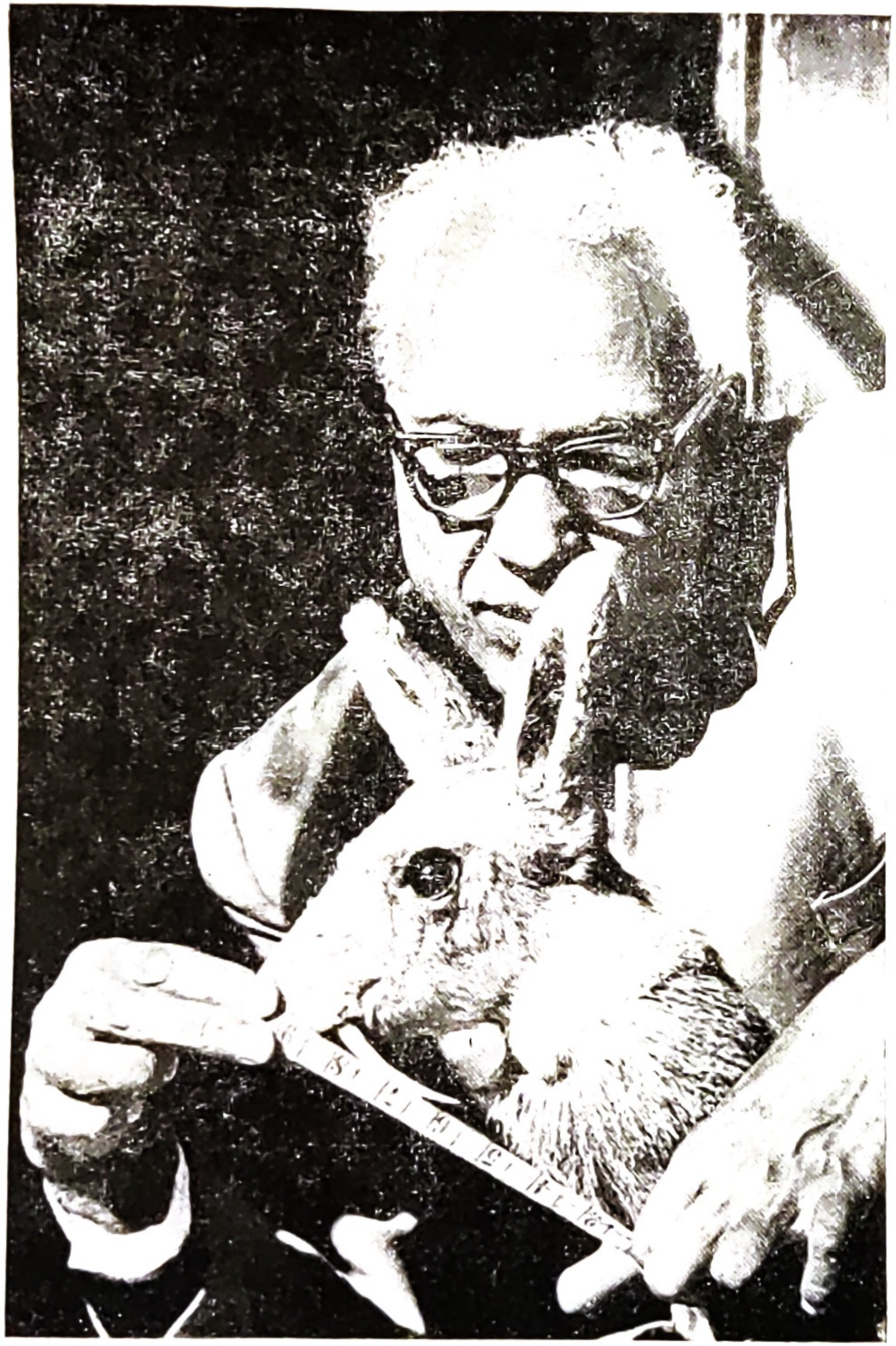
Part of the purchase price has been paid and the balance has still to be paid. Patrons, Members, and Sympathisers are requested to donate generously so that balance may be paid soon.

Donations, big and small, may please be sent to the Wildlife Preservation Society of India, 7, Astley Hall, Dehra Dun, U.P. (India).

All donations will be gratefully acknowledged and the names of donors published in CHEETAL.

PRESIDENT
and
The Executive Committee

Edited by Dr. R.N. Misra, Dr. S.K. Sangal, N.K. Jain and Published by Dr. R.N. Misra, Hony. Secretary for the
Wildlife Preservation Society of India (Phone: 5392, Gram: Cheetal), 7, Astley Hall, Dehra Dun and
Printed by T.C. Sharma at Dun Printing House, Rajpur Road, Dehra Dun.



कस्तूरी मृग का उद्दन्त (tusk) नापते हुए रामेश वेदी
—कापी राइट फोटो राजेश वेदी

Hangul

The Wildlife Preservation Society of India

1. The aims and objects of the Society are :—
    - (a) To promote interest in and impart knowledge regarding the preservation and conservation of all forms of wildlife, particularly among the youth of the country.
    - (b) To co-operate with the Govts. of India and States and with other Societies and Institutions having similar aims and objects in working for the interests of wildlife.
    - (c) To assist in enforcing and actively supporting the Forest Acts, Wild Birds and Animals Protection Acts and Rules etc. of States and the Indian Arms Act and Rules in so far as they pertain to wildlife and to bring to the notice of the authorities any infringement of the same and to assist in the detection and prosecution of offenders in respect of such laws.
    - (d) To advise and help the Govt. and wildlife administrators in the formation, maintenance and protection of Sanctuaries and National Parks, the preservation of wildlife in general and rare species of India in particular and in the introduction of exotic species into the country, the rehabilitation of rare species etc. and in the revision on rational lines of the shooting and fishing rules, so as to conserve and increase wildlife stocks.
    - (e) To raise funds for the carrying out of the above aims and objects and to found and maintain museums, reading rooms and libraries of natural history in order to disseminate knowledge regarding wildlife.
    - (f) To promote sportsmanship in shikar and to recognise well regulated shooting and fishing, as a means of preserving wildlife and fish so that through wise use the surplus may provide a recreational asset to the nation.
    - (g) To carry out publicity and propaganda for the preservation of wildlife in India by means of monographs, journals, films, film strips and other feasible methods.
    - (h) To assist members of the Society in obtaining shooting and fishing facilities and facilities for viewing and photographing wildlife in India.
    - (i) To conduct research into the problem of Wildlife management in India, and in pursuance of this, to initiate, encourage and, where possible assist in projects for the study of threatened species and related subjects and to provide reference and research facilities for such work.
    - (j) To carry on such other activities which will serve the above subjects.

What membership of Wildlife Preservation Society of India will entitle you to ?

1. You will become an active member of the growing group of Wildlife enthusiasts, who enjoy working for and spreading the knowledge of how to conserve India's heritage of Wildlife for posterity.
2. You will be entitled to the full use of the library of the Wildlife Preservation Society and of its reading room.
3. You will receive a membership certificate.
4. You will receive personal Identification and Membership card.
5. You will be entitled to buy all publications of the Society at a concessional rate.
6. You will be entitled to buy at concessional rates the Society's Tie, and the Balance of Nature Game (specially published in colour for its educative and recreational value).
7. You will be supplied "Cheetal", journal of the Society free.

For membership particulars write to Honorary Secretary, Wildlife Preservation Society of India, 7 Astley Hall, Dehra Dun.